SITE DEVELOPMENT PLANS

FOR

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

3.17 ACRES

NOTES:

1. THIS PROJECT IS SUBJECT TO TCEQ'S TPDES SWPPPREGULATIONS PER TEXAS WATER CODE CHAPTER 26. IF NOT ALREADY DONE, HAVE A TX PE, CPESC, OR QPSWPPP DEVELOP/AMEND A PROJECT-SPECIFIC SWPPP AND SEEK APPLICABLE TPDES PERMIT TXR150000 COVERAGE IMMEDIATELY PER TXR150000 PARTS I-III AND CITY CODE SECTION 86.529(B)(2) OR 86.529(C)(3). A HARD-COPY OF THE SWPPP, INCLUDING FULL-SIZE SITE MAP, MUST BE AVAILABLE AT THE PRE-CON MEETING, KEPT ONSITE, AND UPDATED TO MATCH SITE CONDITIONS DURING THE PROJECT."
2. REGISTRATION WITH TECQ FOR UNDER GROUND STORAGE TANK REQUIRED.

SEQUENCE OF CONSTRUCTION

1. OBTAIN CITY-APPROVED SITE PLAN PERMIT AND APPLICABLE TPDES SWPPP PERMIT TXR150000 COVERAGE; HAVE A TX PE, CPESC, OR QPSWPPP PREPARE/AMEND PROJECT-SPECIFIC SWPPP.
2. INSTALL TEMPORARY EROSION/SEDIMENTATION CONTROLS, AND TREE PROTECTION FENCING IF APPLICABLE, PER PLANS.
3. UPLOAD TO MYGOVERNMENTONLINE.ORG OR OTHERWISE PROVIDE TO THE PERMIT CENTER THE SIGNED, CERTIFIED APPLICABLE TPDES CONSTRUCTION SITE NOTICE (CSN). POST THE CSN IN PUBLIC VIEW.
4. SCHEDULE PRE-CON MEETING WITH THE PERMIT CENTER, 512-805-2630.
5. BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
6. BEGIN SITE CLEARING AND GRADING.
7. HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT. MAINTAIN ALL EROSION CONTROL MEASURES AND ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS.
8. INSTALL TEMPORARY SEDIMENTATION POND, IF APPLICABLE.
9. CONSTRUCT IMPROVEMENTS PER CITY-APPROVED SITE PLANS.
10. COMPLETE PERMANENT STABILIZATION: RESTORE AND REVEGETATE ALL UNCOVERED AREAS DISTURBED DURING THE PROJECT, INCLUDING OFFSITE AREAS.
11. SCHEDULE SITE FINAL INSPECTION WITH THE PERMIT CENTER: SITEFINAL@SANMARCOSTX.GOV OR 512-805-2630.
12. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
13. WITH CITY APPROVAL, REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION WITH UNIFORM PERENNIAL VEGETATION OF AT LEAST 70% DENSITY, EVENLY DISTRIBUTED WITH NO LARGE BARE AREAS, IS ESTABLISHED.
14. UPLOAD TO MYGOVERNMENTONLINE.ORG OR OTHERWISE PROVIDE TO THE PERMIT CENTER THE INITIALED, DATED, COMPLETED TPDES CSN OR TPDES NOTICE OF TERMINATION, AS APPLICABLE.
15. CITY ISSUES CERTIFICATE OF ACCEPTANCE OR OCCUPANCY.

DETENTION POND NOTES

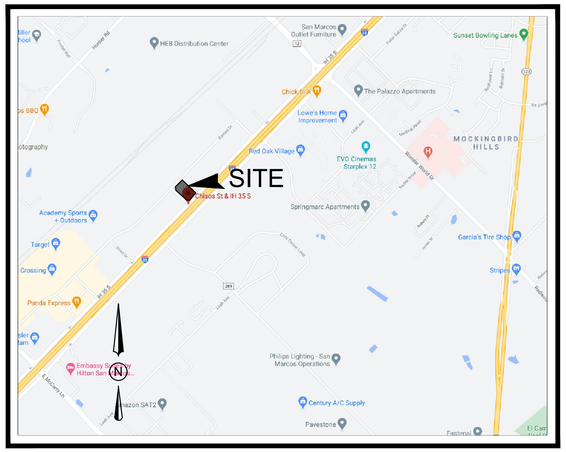
UPON COMPLETION OF THE PROPOSED STROMWATER DETENTION AND/OR WATER QUALITY STRUCTURAL CONTROL(S), AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF ACCEPTANCE OR OCCUPANCY BY THE PERMIT CENTER, THE DESIGN ENGINEER SHALL CERTIFY THE WRITING THAT THE PROPOSED STRUCTURAL CONTROL(S) WAS INSPECTED (INCLUDING DATE AND TIME OF THE INSPECTION) AND CONSTRUCTED IN CONFORMANCE WITH APPROVED PLANS. ANY SUCH STRUCTURAL CONTROL(S) BUILT WITHIN THE CITY OF SAN MARCOS MUST MAINTAIN COMPLIANCE WITH THE CITY'S MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) AND APPLICABLE MS4 ORDINANCES. PRIOR TO RELEASE OF THE CERTIFICATE OF ACCEPTANCE OR OCCUPANCY, A CITY EASEMENT MUST BE SHOWN AROUND ALL STRUCTURAL CONTROLS INCLUDING A MAINTENANCE COVENANT WITH THE CITY LIMITS.

PROJECT CONTACT LIST	
ENGINEER TRIANGLE ENGINEERING LLC 1784 McDERMOTT DR., STE. 110 ALLEN, TX. 75013 ANDREW YEOH 214-906-5194	OWNER/DEVELOPER CW 9 SAN MARCOS LLC 11110 ZIMMERMAN LANE AUSTIN, TX. 78726 SHAHAN BHAIDANI 512-293-4801
SURVEYOR ASH&ASSOCIATES 142 JACKSON LANE, SAN MARCOS,TX 78666 512-392-1719	ARCHITECT A PLUS DESIGN GROUP 2653 SAGEBRUSH DR #200 FLOWER MOUND, TX 75028 TRENT W. CLARK 972-724-4440

SPP PERMIT NO.
WPP2 PERMIT NO.
BP PERMIT NO.

TXDOT NOTES

DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY. FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.



VICINITY MAP

N.T.S.

SAN MARCOS — Where your journey begins

SITE FINAL INSPECTION CHECKLIST Call Permit Center or email SiteFinal@sanmarcostx.gov to schedule 1+ days ahead.

This list is not all-inclusive, but covers most of the items that will be inspected. The list is assessed per the approved plan set and subsequent staff-approved plan addendums. ***If on-the-ground changes were made without plan revision submission to the City for staff review & approval, Site Final Inspection approval may be delayed while revised plans are submitted & reviewed.*** Cash fiscal security will be required for listed items that are deferred until after issuance of a temporary certificate of occupancy.

PRIOR TO ISSUANCE OF A TEMPORARY CERTIFICATE OF OCCUPANCY (TCO)

Engineering (All items as applicable) CONTACT: Aaron Garcia 512 393-8129
Proper permanent pond/other WQ/drainage-related construction, including berms, discharge controls, etc.
Acceptance of Engineer's Letter of Concurrence for pond(s) &/or other WQ/drainage-related item(s).
Approval of MS4 required Easement documentation prior to execution; delivery of original recorded document(s).

Planning (All items as applicable) CONTACT: Matthew Johnson 512 393-8238
Correct photometrics, sidewalks, bicycle parking, equivalent dumpster/recycling space & screening.
Correct mitigation trees, street trees, other landscaping, plantings/barriers to screen mech./utility vaults.
Correct parking layout/striping, wheel stops, parking screening, identified visitor/compact parking.
Compliance with any special/unique PDD or other Planning Agreement site requirements.
911 address assigned for project. ***Note that tree removals, more/diff. lighting, etc. require Addendums.***

Environmental/SWPPP (All items as applicable) CONTACT: Ann Gabriel 512 805-2632
Correct downspout stormwater tie-ins or discharge controls.
Correct site surface types (concrete, pavers, asphalt, etc.), including driveway approaches.
Temporary water meter on fire hydrant & temporary electric meter assembly removed.
Entire site permanently stabilized: disturbed, uncovered areas at least 70% revegetation growth, evenly distributed, with no large bare areas. Note: Rye alone is not accepted as permanent stabilization.
Tree/special feature protection fence & temporary erosion controls removed, except for controls serving unstabilized areas; controls must be removed after 70% revegetation is achieved & approved.
Slopes, head walls, behind wheelchair ramps, etc., require retention blankets or equivalent control(s).
Construction debris, trash, materials, supplies, equipment, fencing, mobile minis, dumpsters, stabilized construction entrances/exits, contractors' trailers & signage, portable toilets, etc. removed.
Site & adjacent street(s) cleaned of construction dirt, rocks, etc. that can wash into stormwater systems.
Compliant "Finished Construction" Elevation Certificate(s) on current FEMA form expiring **Nov 2018.**

TCO/CO Approval (All items as applicable) CONTACT: Elizabeth Ehlers 512 805-2640
All outstanding fees paid, including CASH fiscal security (not a bond) for deferred items listed above.
Final approval of the Building Official, Fire Marshal, & other City departments.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY (CO)

Entire site permanently stabilized as described above; any other deferred/fiscal security items finished.
All temporary erosion & sedimentation controls removed, including inlet protection.
TPDES Notice of Termination (NOT) submitted to TCEQ, if applicable. TPDES SWPPP Construction Site Notice (CSN) onsite posting removed. Completed CSN or NOT, as applicable, submitted to the City.

4-1-2020

SHEET INDEX	
NO.	DESCRIPTION
C-1.0	COVER SHEET
S	SURVEY
P	RECORD PLAT
RP	REPLAT
	COSM CONSTRUCTION REQUIREMENTS AND NOTES
C-2.0	DEMOLITION PLAN
C-3.0	SITE PLAN
C-3.1	SITE PLAN DETAILS
C-4.0	GRADING PLAN
C-4.1	POND PLAN-1
C-4.2	POND PLAN-2
C-4.3	CUT AND FILL MAP
C-5.0	EXISTING DRAINAGE AREA MAP
C-6.0	POST-DRAINAGE AREA MAP
C-6.1	STORM SEWER PLAN-1
C-6.2	STORM SEWER PLAN-2
C-6.3	WATER QUALITY PLAN
C-6.4	STORM SEWER DETAILS
C-7.0	EROSION CONTROL PLAN
C-7.1	EROSION CONTROL DETAILS
C-8.0	PAVING PLAN
C-8.1	PAVING DETAILS-1
C-8.2	PAVING DETAILS-2
C-8.3	PAVING DETAILS-3
C-8.4	PAVING DETAILS-4
C-9.0	UTILITY PLAN
C-9.1	UTILITY DETAILS-1
C-9.2	UTILITY DETAILS-2
L-1.0	LANDSCAPE PLAN - 1
L-2.0	LANDSCAPE PLAN - 2
L-3.0	IRRIGATION PLAN - 1
L-4.0	IRRIGATION PLAN - 2

PERMIT NUMBER 2021-35249
PERMIT NUMBER 2021-35250

811 Know what's **below.** **Call** before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS — PIK HAU YEOH — 121532 — LICENSED PROFESSIONAL ENGINEER
11/03/2022

COVER SHEET

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

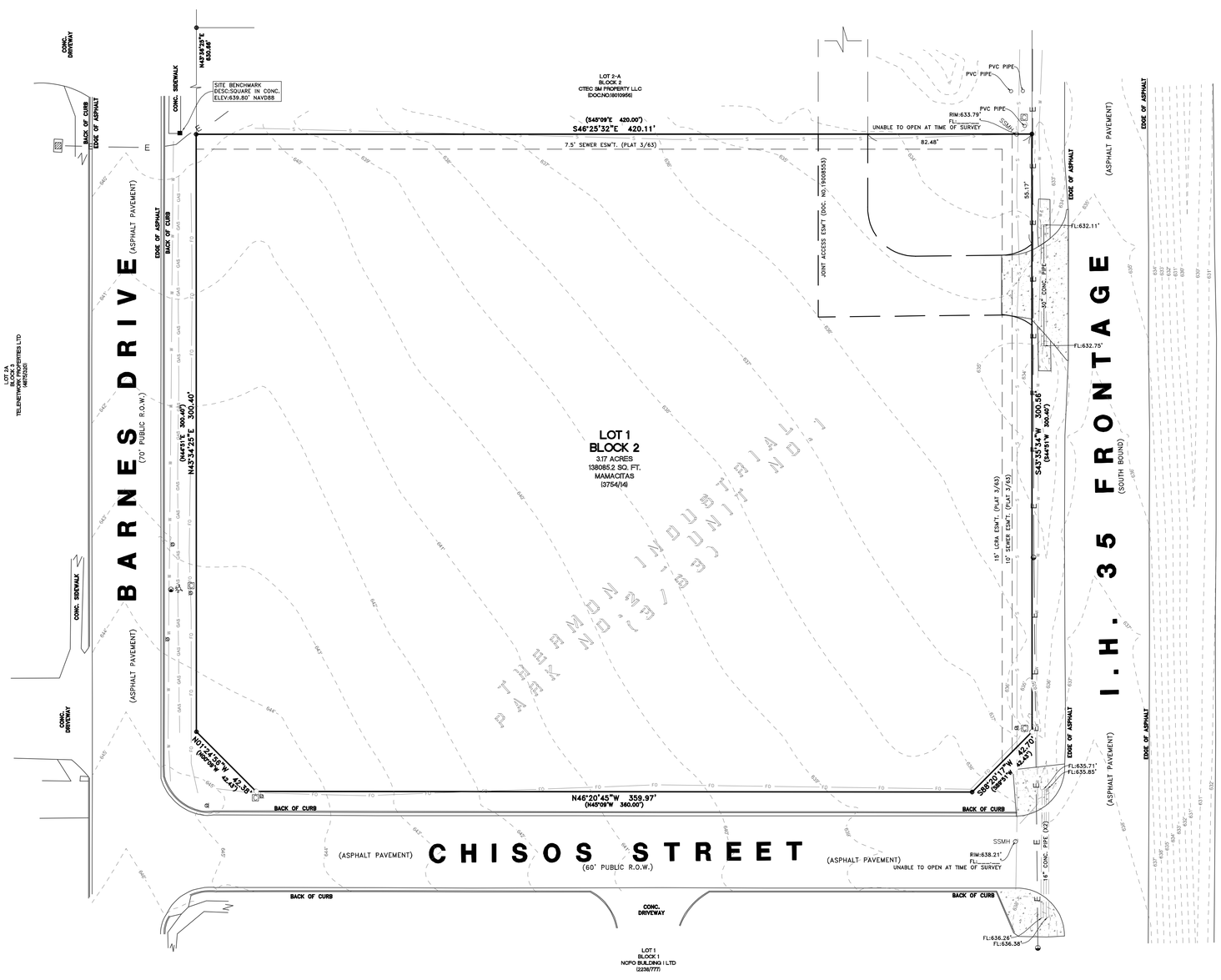
HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-1.0

TX. P.E. FIRM #11525



0 15' 30' 60'

GRAPHIC SCALE: 1" = 30'

LEGEND

- IRON PIPE FOUND
- IRON ROD FOUND
- IRON ROD SET CAPPED "RPLS 5687"
- "X" IN CONCRETE
- PK FOUND
- CALCULATED POINT
- CONCRETE MONUMENT
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- CLEANOUT
- GAS VALVE
- POWER POLE
- OVERHEAD ELECTRIC LINE
- DOWN GUY
- ELECTRIC METER
- LIGHT POLE
- WOOD FENCE
- CHAIN LINK FENCE
- WIRE FENCE
- METAL FENCE
- GAS METER
- TELEPHONE PEDESTAL
- CABLE PEDESTAL
- SSMH SANITARY SEWER MANHOLE
- STMH STORM SEWER MANHOLE
- ELECTRIC GROUND
- CONTROL POINT
- UNDERGROUND UTILITY MARKER SIGN
- UNDERGROUND UTILITY TEST STATION
- SIGN POST
- ELECTRIC TRANSFORMER
- TRAFFIC SIGNAL BOX
- P.U.E. PUBLIC UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- B.L. BUILDING LINE
- (BRG.-DIST.) RECORD CALL
- GAS — EXISTING GAS
- S — EXISTING SANITARY SEWER
- FO — EXISTING FIBER OPTIC
- W — EXISTING WATER

I.H. 35
(300' PUBLIC R.O.W.)

TITLE NOTES:

1) ACCORDING TO THE SCHEDULE B OF THE COMMITMENT FOR TITLE, GF # 2030795-COM, EFFECTIVE DECEMBER 11, 2020 BY TITLE RESOURCES GUARANTY COMPANY, THE PROPERTY IS SUBJECT TO THE FOLLOWING:

2) THIS LOT IS SUBJECT TO THE RESTRICTIONS RECORDED IN VOLUME 2806, PAGE 494, VOLUME 3754, PAGE 1, AND DOCUMENT NO. 19008553, OFFICIAL PUBLIC RECORDS, HAYS COUNTY, TEXAS.

3) EASEMENT AS SHOWN ON THE PLAT AND DEDICATION SET OUT IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS: PURPOSE: SEWER LOCATION: 10 FEET IN WIDTH ALONG THE SOUTHEAST PROPERTY LINE. (SHOWN HEREON)

4) EASEMENT AS SHOWN ON THE PLAT AND DEDICATION SET OUT IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS: PURPOSE: SEWER LOCATION: 7.5 FEET IN WIDTH ALONG THE NORTHEAST PROPERTY LINE. (SHOWN HEREON)

5) EASEMENT AS SHOWN ON THE PLAT AND DEDICATION SET OUT IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS: PURPOSE: LCRA LOCATION: 15 FEET IN WIDTH PARALLEL AND ADJACENT TO THE AFOREMENTIONED 10 FOOT SEWER EASEMENT ALONG THE SOUTHEAST PROPERTY LINE. (SHOWN HEREON)

6) JOINT ACCESS EASEMENT TRACT 1 AND TRACT 2: TERMS, CONDITIONS, AND STIPULATIONS IN THE JOINT USE ACCESS AGREEMENT, RECORDED: VOLUME 3754, PAGE 18, AS FURTHER AFFECTED IN DOCUMENT NO.19008553, OFFICIAL PUBLIC RECORDS, HAYS COUNTY, TEXAS. (SHOWN HEREON)

TO:

PURCHASER: EMBARK ENERGY LLC. & CW 9 SAN MARCOS LLC
LENDER: FALCON INTERNATIONAL BANK
TITLE CO: INDEPENDENCE TITLE
GF NO: 2030795-COM
ADDRESS: TO BE DETERMINED

GENERAL NOTES:

1) ACCORDING TO THE NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48209C0477F, DATED SEP. 02, 2005, THIS LOT IS LOCATED IN ZONE "X" (UNSHADED), WHICH IS AN AREA OUTSIDE THE FEMA DESIGNATED 100-YEAR FLOODPLAIN, AND IN LOMAR 18-06-1845P, EFFECTIVE APR. 4, 2019.

2) BEARING BASIS DERIVED BY GPS MEASUREMENTS ADJUSTED BY HARN (HIGH ACCURACY REFERENCE NETWORK) & PROJECTED TO TEXAS STATE PLANE COORDINATES & NAD83 (HORIZONTAL), NAVD88 (VERTICAL).

REFERENCE BENCHMARK: SAN MARCOS GPS NO. 1
DESCRIPTION: ALUMINUM DISK SET IN CONCRETE
ELEVATION: 607.64' NAVD88.

ALTA/NSPS LAND TITLE SURVEY OF:

LOT 1, BLOCK 2, THERMON INDUSTRIAL PARK NO. 2, UNIT NO. 1, ACCORDING TO THE MAP OR PLAT THEREOF, RECORDED IN VOLUME 3, PAGE 63, PLAT RECORDS, HAYS COUNTY, TEXAS.

TO: FALCON INTERNATIONAL BANK, EMBARK ENERGY LLC, INDEPENDENCE TITLE AND TITLE RESOURCES GUARANTY COMPANY (GF #2030795-COM):

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2 (TO BE DETERMINED), 3, 4, 5, 8 (VACANT), 9 (VACANT), 11 (OBSERVED EVIDENCE), AND 13, OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JULY 22/2020.

STATE OF TEXAS
REGISTERED
RICHARD TAYLOR
3986
PROFESSIONAL
LAND SURVEYOR

07/23/2020
DATE

RICHARD H. TAYLOR, RPLS
REGISTERED PROFESSIONAL LAND SURVEYOR
NUMBER 3986 STATE OF TEXAS
© ASH & ASSOCIATES, L.L.C.

REVISIONS

NO.	REVISION	APPD.	DATE
3	AS-BUILT	RHT	01/19/21
2	COMMITMENT FOR TITLE	RHT	01/13/21
1	SQ. FEET	MAM	08/04/20

ASH & ASSOCIATES
SURVEYING-PLANNING-ARCHITECTURE
"SERVING THE COMMUNITY OF TEXAS"
142 JACKSON LANE
SAN MARCOS, TEXAS 78666
(512) 392-1719
ashandassociates.net
Surveying#: 100847-00
Architecture#: 10526-00

DRAWING INFORMATION

DESIGNED BY:	MAM	DATE:	07/23/2020
DRAWN BY:	MAM	PROJECT NO:	20-7564
APPROVED BY:	RHT	PLOT SCALE:	1" : 30'
FILE NAME:	MAMACITAS		

ALTA/NSPS LAND TITLE SURVEY

LOT 1 – BLOCK 2 – 3.17 ACRES
THERMON INDUSTRIAL PARK NO.2 – UNIT NO.1
J.M. VERAMENDI ABS. NO.17
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS.

DRAWING
LOT 1
SHEET: 1
OF 1

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THIS SUBMITTAL PREPARED BY

H.S. Bettersworth & Associates, Inc.,
Engineers Surveyors
315 S. Crockett St., Seguin, TX. 78155
512 - 379-5552

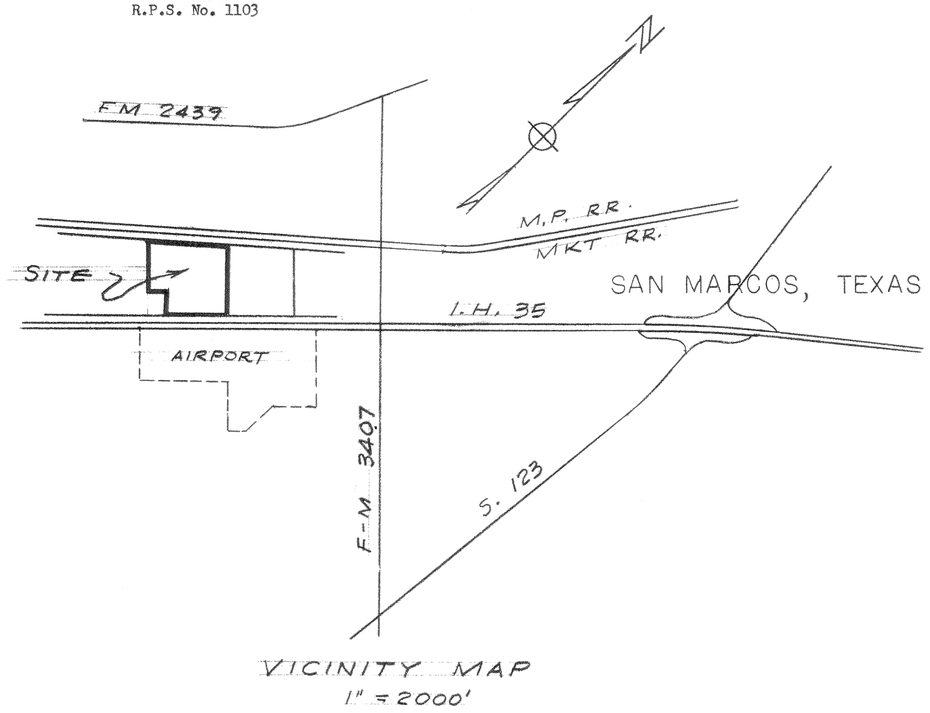
KNOW ALL MEN BY THESE PRESENTS:

I, H.S. Bettersworth, P.E. and R.P.S. in the state of Texas, do hereby certify the following:

This plat of Thermon Industrial Park No. 2, shown on sheet 2 hereof, is an accurate survey made on the grounds and under my supervision. All corners of all tracts are marked with iron stakes except as noted.
Proper engineering consideration has been given to the plat and all features of same are in compliance with the City of San Marcos subdivision ordinance.

STATE OF TEXAS
H. S. BETTERSWORTH
7403
REGISTERED PROFESSIONAL ENGINEER

H.S. Bettersworth
P.E. No. 7403
R.P.S. No. 1103



VICINITY MAP
1" = 2000'

Approved this the 18th day of MAY 1982 by the Planning and Zoning Commission of the city of San Marcos, Texas.

Bill G. Morris
Chairman

Joe C Hoyo
Secretary

APPROVED FOR ACCEPTANCE

3-9-84 Joe C Hoyo
Date Director of Planning

5-23-84 Daniel Braun (Acting)
Date Director of Public Works

Accepted and Authorized for record by the Planning Commission, City of San Marcos, Texas. This the 18th day of MAY, 1982.

Joe C Hoyo Chairman
Secretary

STATE OF TEXAS
COUNTY OF HAYS

KNOW ALL MEN BY THESE PRESENTS that we the undersigned, Knox Pitzer President of Indeco Corporation and Jerry Fruit general partner of Chisos Investments, a Partnership, said Partnership being the owner of 13.03 acres of land, part of a 53.93 acre tract conveyed by W.P. Donalson, Jr., to Thermon Industrial Corporation (now Indeco Corporation) by deed dated Sept. 19, 1980 and recorded in volume 347 at page 629 of the deed records of Hays County, Texas, and said Corporation being the owner of the residue of said 53.93 acres, said 13.03 acres and said residue comprising the land shown on sheet 2 hereof, do hereby dedicate this plat as their subdivision to be known as Thermon Industrial Park No. 2 and do hereby dedicate to the use of the public all streets shown thereon and all easements shown thereon for the purpose of constructing and maintaining utilities and drainage and not to the public in general.

Executed this 6TH day of MARCH 19 84

Indeco Corporation

Knox Pitzer
By: Knox Pitzer,
President

Chisos Investments

Jerry Fruit
By: Jerry Fruit,
General Partner

STATE OF TEXAS
COUNTY OF HAYS

Before me, the undersigned authority, on this day personally appeared Knox Pitzer, President of Indeco Corporation, and Jerry Fruit, general partner of Chisos Investments, known to me to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same for the purposes and considerations therein expressed and in the capacities therein stated and as the acts and deeds of said Corporation and said Partnership.

Given under my hand and seal of office this the 6TH day of MARCH 1984.

Paul E. Neilson
Notary Public in and for
Hays County, Texas

My commission expires 7-13-84

STATE OF TEXAS
COUNTY OF HAYS

I, Myrtle B. Clayton County Clerk of said county, do hereby certify that the foregoing instrument of writing with its certificate of authentication was filed for record in my office on the 23 day of March, 1984, at 11A.M., and duly recorded the 23 day of March, 1984, at 11 A.M., in the records of PLATS of said county in book volume 3 on page 63-64 in testimony whereof witness my hand and official seal of office this 23 day of March, 1984.

By Linda C Fritsche Deputy
County Clerk
Hays County, Texas.

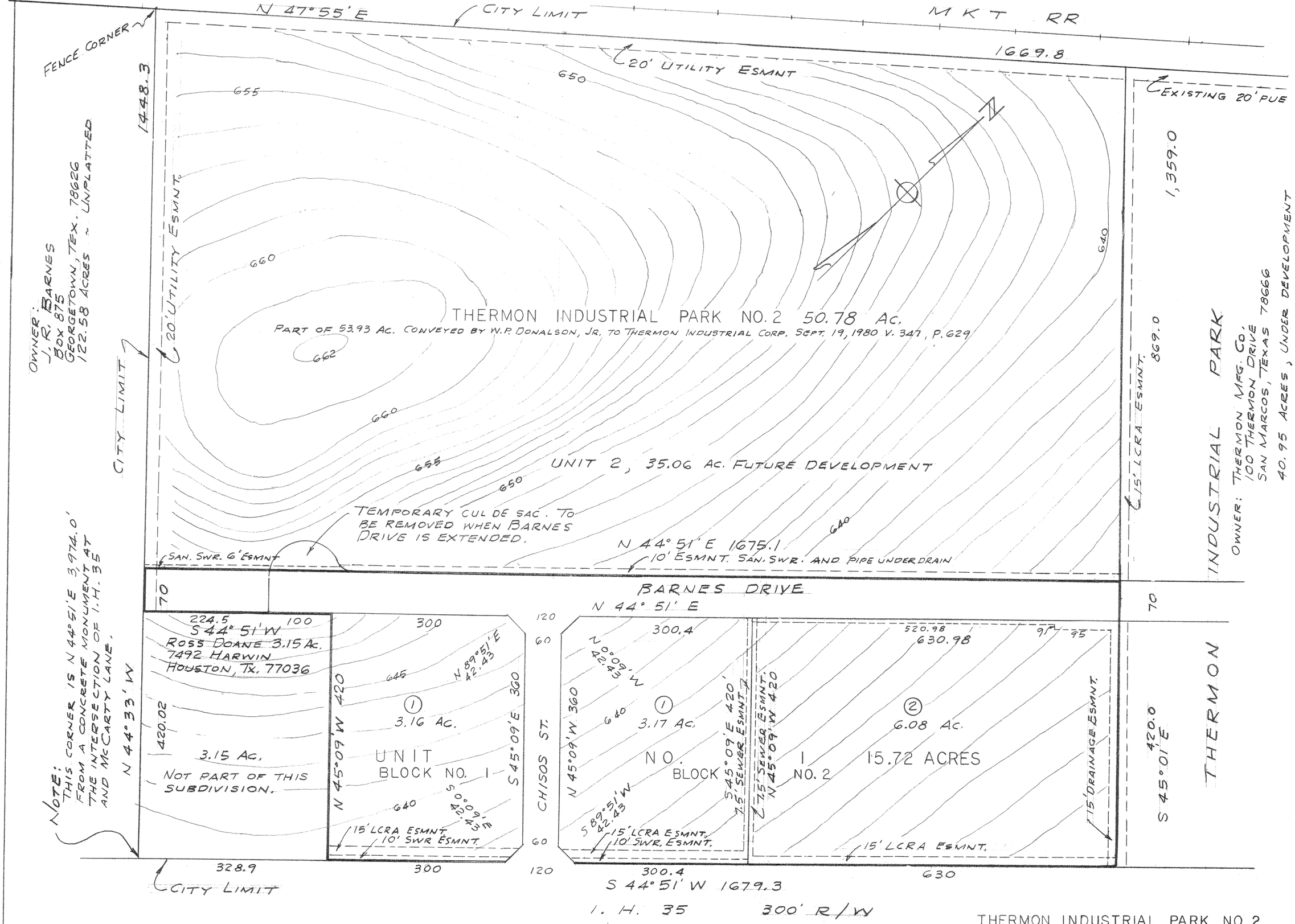
184080

THERMON INDUSTRIAL PARK NO. 2
UNIT NO. 1
J M VERAMENDI SURVEY NO. 1
SAN MARCOS HAYS COUNTY TEXAS

SHEET 1 OF 2

81-56-8

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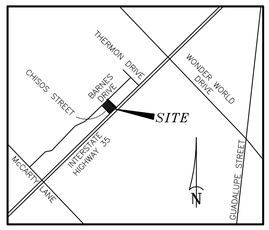


H. S. BETTERSWORTH & ASSOCIATES, INC.
315 S. CROCKETT ST.
SEGUIN, TEXAS 78155

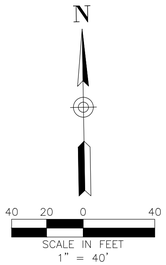
THERMON INDUSTRIAL PARK NO. 2
UNIT NO. 1
J.M. VERAMENDI SURVEY NO. 1
SAN MARCOS, HAYS COUNTY, TEXAS
SCALE: 1" = 100'

SHEET 2 OF 2

81-46-8



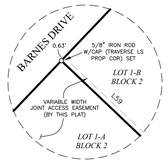
VICINITY MAP
NOT TO SCALE



The Basis of Bearings is from the Texas State Plane Coordinate System, NAD83, North Central Zone as derived from GPS observations using the Allterra RTK Network and adjusted to surface using a surface scale factor of 1.00013.

LINE TABLE

No.	Bearing	Distance
L1	S 88°34'03" W	42.42'
L2	S 01°25'57" W	42.43'
L8	N 46°25'57" W	39.22'
L9	N 43°40'07" E	4.36'
L10	N 77°36'08" W	18.14'
L11	N 46°25'57" W	38.65'
L12	S 77°36'08" E	57.04'
L13	N 43°40'07" E	16.53'
L14	S 46°25'32" E	19.67'
L15	N 43°35'46" W	60.40'
L17	N 46°25'57" W	27.03'
L18	S 46°25'57" E	39.22'
L19	S 88°34'03" W	21.09'
L20	S 46°25'57" E	38.65'
L21	N 77°36'08" W	101.50'
L22	S 43°36'17" W	2.37'
L23	S 46°23'43" E	3.00'
L24	S 43°36'17" W	5.00'
L25	N 46°23'43" W	3.00'
L26	S 43°36'17" W	104.06'
L27	N 46°20'21" W	28.11'
L28	N 01°52'16" W	27.81'
L29	N 43°34'25" E	110.04'
L30	S 46°25'32" E	39.36'
L31	S 77°36'08" E	66.41'
L32	S 46°25'57" E	10.00'
L33	S 43°34'03" W	31.40'
L34	N 46°25'57" W	10.00'
L35	N 43°34'03" E	31.40'
L36	S 46°25'32" E	13.09'
L37	S 02°46'50" W	4.46'
L38	S 88°34'03" W	23.26'
L39	N 43°34'03" E	161.93'
L40	S 46°25'57" E	16.45'
L41	S 43°34'01" W	145.48'
L42	S 43°34'03" W	154.93'
L43	N 46°25'57" W	16.45'
L44	N 43°34'03" E	42.44'
L45	N 65°58'41" E	14.30'
L46	N 43°34'03" E	99.27'
L47	S 46°25'57" E	11.00'
L48	S 43°35'47" W	17.27'
L49	N 46°25'32" W	238.66'
L50	S 46°25'32" E	232.47'
L51	S 43°39'15" W	132.05'
L52	S 43°39'15" W	157.17'
L53	N 46°25'32" W	17.48'
L54	S 42°57'24" W	16.35'
L55	S 88°34'03" W	48.28'
L56	N 46°25'57" W	332.35'
L57	S 43°34'03" W	10.00'



DETAIL "A"
NOT TO SCALE

GENERAL NOTES

1. The purpose of this replat is to create two (2) lots out of the existing (1) for two different future developments and to dedicate a new drainage and water easement.
2. Sidewalks will be required along all frontages at the time of development.
3. Selling a portion of this addition by metes and bounds is a violation of city subdivision ordinance and state platting statutes and is subject to fines and witholding of utilities and building certificates
4. All drainage easements will be privately maintained.
5. No portion of the subject property shown hereon lies within the 100 year flood hazard area according to the Flood Insurance Rate Map, Community Panel No. 48209C0477F, dated September 2, 2005. The subject property is located in the area designated as Zone "X", (areas determined to be outside the 0.2% annual chance floodplain).
6. Shared responsibility of Lot to Lot drainage by owners.
7. This property is in the San Marcos River Protection Zone.
8. The drainage easement is for lot to lot drainage and water quality system.

LEGEND

———	BOUNDARY LINE
—·—·—	ADJOINER BOUNDARY LINE
- - - - - - -	EASEMENT LINE (AS NOTED)
—\/—	NOT TO SCALE
○	SET IRON ROD (AS NOTED)
●	FOUND IRON ROD (AS NOTED)
PUE	PUBLIC UTILITY EASEMENT
(CM)	CONTROL MONUMENT
COSM	CITY OF SAN MARCOS
P.R.H.C.T.	PLAT RECORDS HAYS COUNTY, TEXAS
O.P.R.H.C.T.	OFFICIAL PUBLIC RECORDS HAYS COUNTY, TEXAS

CURVE TABLE

Curve No.	Delta	Radius	Length	Chord Bearing	Chord
C1	90°00'00"	19.50'	30.63'	N 88°34'28" E	27.58'
C2	90°01'45"	20.00'	31.43'	N 01°24'40" W	28.30'
C3	89°58'38"	20.00'	31.41'	N 88°35'09" E	28.28'
C4	50°03'39"	40.01'	34.95'	N 71°27'22" W	33.85'
C5	50°19'09"	30.00'	26.35'	S 71°19'37" E	25.51'
C6	90°04'47"	20.00'	31.45'	S 01°23'09" E	28.31'
C7	66°23'34"	20.00'	23.18'	S 76°51'02" W	21.90'
C8	23°31'39"	20.00'	8.21'	N 58°11'21" W	8.16'
C9	90°54'59"	45.01'	71.41'	N 88°24'53" E	64.15'

SURVEYOR'S CERTIFICATION

KNOW ALL MEN BY THESE PRESENTS:

That I, Mark Allan Nace, a Registered Professional Land Surveyor licensed in the State of Texas, do hereby certify that this Plat is true and correct and was prepared from an actual survey made under my supervision on the ground.

PRELIMINARY, THIS SURVEY SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT

Mark Allan Nace
Registered Professional Land Surveyor
Texas Registration No. 5539

Date: _____

State of Texas §
County of Dallas §

BEFORE ME, the undersigned authority, a notary public in and for the State of Texas, on this day personally appeared Mark Allan Nace, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same in the capacity therein stated.

Given under my hand and seal of office this _____ day of _____, 2022

_____
Notary Public in and for the State of Texas

OWNER'S ACKNOWLEDGEMENT

State of Texas §
County of Hays §

Whereas, CW 9 SAN MARCOS LLC AND EMBARK ENERGY LLC, do hereby certify that I am the legal owner of the 3.17 acre tract of land shown on this plat, and designated as Thermon Industrial Park No. 2, Unit 1, Lot 1, Block 2, an addition to City of San Marcos, Hays County, Texas, do hereby replat this property to be known as Thermon Industrial Park No. 2, Unit 1, Lots 1-A and 1-B and dedicate to the use of the public all streets, alleys, park, watercourses, drains, and public places shown on this plat.

_____
CW 9 SAN MARCOS LLC and EMBARK ENERGY LLC

State of Texas §
County of Hays §

BEFORE ME, the undersigned Notary Public in and for the State of Texas, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purpose and considerations therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this _____ day of _____, 2022

_____
Notary Public in and for the State of Texas

State of Texas §
County of Hays §

BEFORE ME, the undersigned Notary Public in and for the State of Texas, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purpose and considerations therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this _____ day of _____, 2022

_____
Notary Public in and for the State of Texas

CITY OF SAN MARCOS
CERTIFICATE OF APPROVAL

Approved and Authorized to be recorded on the _____ day of _____ , 2022 by the Planning and Zoning Commission of the City of San Marcos.

_____ _____
Chairman, Planning and Zoning Commission — Date

_____ _____
Director of Development Services — Date

_____ _____
Recording Secretary — Date

_____ _____
CIP and Engineering — Date

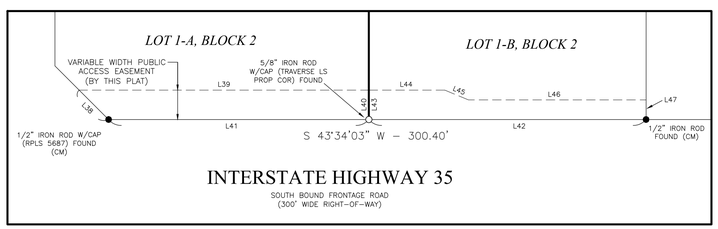
State of Texas §
County of Hays §

I, Elaine Cardenas, County Clerk of Hays County, Texas, do hereby certify that the foregoing instrument of writing with its certificate of authentication was filed for record in my office on the ____ day of _____ A.D. 2022 at _____ o'clock ____ in the plat records of Hays County, Texas, under document number _____.

Witness my hand and seal of office, this the _____ day of _____ , A.D. 2022.

_____
Elaine Cardenas, County Clerk
Hays County, Texas

EXISTING LOT CONFIGURATION
NOT TO SCALE



DETAIL "B"
1" = 40'

REPLAT
LOT 1-A & LOT 1-B, BLOCK 2
THERMON INDUSTRIAL PARK NO. 2, UNIT 1

BEING A REPLAT OF
LOT 1, BLOCK 2
THERMON INDUSTRIAL PARK
NO. 2, UNIT NO. 1

BEING 3.17 ACRES SITUATED IN THE
J.M. VERAMENDI SURVEY, ABSTRACT NO. 1
AN ADDITION TO THE
CITY OF SAN MARCOS, HAYS COUNTY, TEXAS

SURVEYOR
Name: Traverse Land Surveying, LLC
Address: 14200 Midway Road, Suite 130
Dallas, Texas, 75244
Contact Name: Mark Nace
Phone: 469-784-9321

OWNER/DEVELOPER
Name: CW 9 San Marcos LLC
Embark Energy LLC
Address: 11110 Zimmerman Lane
Austin, Texas 78726
Contact Name: Shahan Bhaidani
Phone: 512-293-4801

TRAVERSE LAND SURVEYING LLC
14200 Midway Road, Suite 130, Dallas, TX 75244 | T: 469.784.9321
W: TraverseLandSurveying.com | Texas Firm No. 10194631

Surveying | Construction Staking | Platting

Date: July 01, 2021 — Project No.: TR-25-21

CITY OF SAN MARCOS
DEVELOPMENT SERVICES
CONSTRUCTION REQUIREMENTS AND NOTES

Revised Date: 06-29-2018
The following City of San Marcos (COSM) requirements supersede, as a minimum requirement, any and all non "redline" comments, specifications, or details listed on the plan.

Plan Review and Revisions

1. The owner, contractor and representatives are responsible for complying with the most current local, state and federal laws, rules and ordinances.

2. The COSM review does not authorize any violations of details, specification, standard products ordinances or laws of the COSM. No code violations listed, drawn, or described in this plan, and/or otherwise installed, manufactured or built, are "approved" by the COSM.

3. A copy of COSM approved plans and any approved revisions bearing a review seal from the COSM must be available on-site at all times.

4. During construction, plan changes or revisions must be uploaded into MyPermitNow for staff review prior to the changes being made. Final Certificate of Occupancy or Certificate of Acceptance will NOT be issued until all changes have been documented and approved.

5. COSM adopted codes with local amendments:

International Building Code -2015
International Energy Code - 2009/2015
International Plumbing Code-2015
National Electric Code -2014
International Mechanical Code-2015
International Fire Code -2015
International Fuel Gas Code-2015
San Marcos Land Development Code (as amended)
Smart Code (as amended)
Code SMTX (as amended)
International Property Maintenance Code-2015
International Swimming Pool and Spa Code-2015

Accessory-Permits and Activities

1. Neither the review of these plans, nor the issuance of a Building or Site Plan Permit, authorizes accessory permits. The owner is responsible for completing the following accessory permits or activities: (verify with the department or division listed below, even if depicted within this plan by the design professional):

- Addressing (Permit Center)
- Assignment of Building Numbers (Permit Center)
- Controlled Access Gates (Fire Prevention)
- Any Fire Protection System [fire alarm, sprinkler, hood system) (Fire Prevention)
- Any Storage Tanks (Fire Prevention)
- High Piled Combustible Stock (Fire Prevention)
- Any Sign and/or Sign Standard (Permit Center)
- Irrigation (Permit Center)
- Fence (Permit Center)
- On-Site Sewage Facilities (OSSF's) (Code Compliance)
- Commercial Swimming pools, spa, & Public Interactive Water Feature (PIWF's) (Permit Center/Code Compliance)
- Backflow Prevention Devices (Water Department)
- Street Closure/Traffic Control Plans (Public
- Services-Transportation Division)
- Right of Way "ROW" (Public Services-Transportation Division)
- EPA or TCEQ permits (State/Permit Center)
- Floodplain Permit (Permit Center)

2. Any portion of work, including, but not limited to, traffic control, which lies in Texas Department of Transportation (TxDOT), Union Pacific Railroad (UPRR) or County property or right of way, shall be permitted and approved by that authority. All required permits shall be secured by the owner or contractor from COSM and any other appropriate authority. A copy of all permit must be on site and available to City Inspector on request.

3. Contractor shall notify the Engineering Department (512-393-8130) and setup a consultation with Engineering Inspector at least 2 weeks before connection with the City water/wastewater system.

4. Contractor shall submit a road closure permit application and setup a consultation with Engineering Inspector Engineering Department (512-393-8130) at least 2 weeks before any lane or road closure.

General Construction Notes

1. Pre-Construction Meeting - Site and/or Building contractor(s) is/are responsible for scheduling a pre-construction meeting with COSM inspector(s) by contacting the Permit Center (512-805-2630) prior to any site work, including demolition. For Public Improvement Construction Projects (PICP's) contact the Engineering Department at (512-393-8130) at capital_imp_Info@sanmarcostx.gov.

2. Site Requirements - The general contractor, owner, and subcontractors are responsible for maintaining a safe and clean work site.

3. Any reference in this section to water, wastewater, electric or other public utility is meant to refer to the utility of certification or Authority Having Jurisdiction.

4. Pre-Construction Video - A video in Windows media format or equivalent of the complete site conditions for all **Public Improvement Construction Projects** (and as requested for Site Plan Projects) is required prior to construction. Provide a copy to the COSM upon request.

5. Inspections - Inspections can be scheduled with the respective divisions by contacting them at:

Building Inspections	www.mypermitnow.org
Fire Prevention/Inspections	www.mypermitnow.org
Site Final Inspections	sitefinal@sanmarcostx.gov
Engineering Inspections	512-393-8130
PICP Inspections	512-393-8130
Code Compliance	512-393-8440 (Food, Pool permits, etc...)

6. Trash - Approved trash containment must be provided for each lot under construction. Commercial solid waste haulers servicing construction sites must hold a permit from the Community Enhancement Initiatives Manager and are subject to commercial solid waste hauler fees.

7. Open Burning - Burning is prohibited in the COSM limits.

8. Blasting - Blasting is prohibited in the COSM limits.

9. Construction Noise-Construction noise, declared a nuisance under COSM ordinance, is not permitted between 9:00 p.m. and 7:00 a.m.

10. Weekend and Holiday work - Weekend and Holiday work is not allowed within a public right- of- way without prior approval.

11. Facilities - Maintained portable bathroom facilities must be provided with a minimum of one bathroom unit per one and two family residential lots. All construction sites are required to provide one bathroom unit per ten construction persons on the job.

12. Access - Temporary access driveways on the job site (aka stabilized construction entrances/exits) must comply with the current City detail, including curb protection. No mud, rock, or debris permitted on any off site roadway. The general contractor and/or owner are responsible for immediately removing any debris on roadways caused by construction.

13. Combustible Construction -An all-weather surfaced roadway and working fire hydrant(s) are required to be installed on property prior to the construction of combustible material. Road base alone is not acceptable.

14. Safety - The general contractor, subcontractors and the owner are responsible for maintaining a safe construction operation at all times. All federal OSHA and state details, as well as local codes, shall be adhered to during the construction phase.

15. Address - The site, separate buildings, electrical disconnects, and/or temporary construction trailers must have an address visible from the street or roadway.

16. Required Postings - All COSM and State permits must be posted facing the street or roadway (where practical). Permanent marker is not an approved marking device.

17. Form Survey Requirements- Prior to requesting a foundation inspection by the Building Inspector, a Form Survey must be completed by a State Registered Land Surveyor validating building location to COSM setback requirements.

18. Floodplain Elevation Certificates - Where and when required, a "Building Under Construction" Elevation Certificate must be completed by a State Registered Land Surveyor (or State Registered Engineer or Architect) on FEMA form expiring Nov 2018 and submitted to the Permit Center at least 36 hours prior to foundation pouring to allow time for review and acceptance. A Land Surveyor's "Finished Construction" Elevation Certificate must also be submitted to and accepted by the Floodplain Administrator before Temporary "Certificate of Occupancy" will be issued.

19. If any geologic or manmade environmental feature is discovered during construction, notify Texas Commission on Environmental Quality (TCEQ) and the COSM Development Services within 24 hours or as soon as practicable. The contractor is required to provide compliance documentation as applicable.

20. EPA/TCEQ - Any required EPA or TCEQ permit(s) is/are separate permit(s) and the responsibility of the contractor. Provide a copy of such permit(s) to the Permit Center.

21. Abandoned wells must be capped or properly abandoned according to the Administrative Rules of the Texas Department of Licensing and Regulation (TDLR), 16 Texas Administrative Code (TAC), Chapter 76. A plugging report must be submitted (by a licensed water well driller) to the TDLR Water Well Drillers Program, Austin Texas. If a well is intended for use, it must comply with 16 TAC.

22. Any tree 9" in diameter or larger at 4.5' above natural grade is considered "regulated". Please refer to the LDC and technical manuals for tree survey, preservation and mitigation requirements. Also refer to the Design & Construction Guide for the tables and tree protection standard details as noted In #25.

23. All product submittals for Public Improvements Construction Projects shall be submitted to the COSM (after approval by the Design Engineer) in PDF format and approved by the COSM prior to construction.

24. Prior to COSM acceptance of the project, all graded and disturbed areas are to be at least 70% re-vegetated with no large bare areas (greater than 3' diameter) in accordance with COSM and project specifications.

25. On the COSM's Design & Construction Guide webpage, located under Engineering & Capital Improvements, the following documents can be found: These Development Construction Requirements and Notes, Detail Design Criteria, Specifications and Details, Standard Product List, Modification to Austin/TxDOT Standard Specifications, Tree Preservation and Mitigation Tables, Landscape Calculation Table, Parking Table.

26. TX 811(811) must be used to locate all existing utilities for the contractor. Once locates are provided, it is the contractor's responsibility to retain these locations. Repeat locates within 14 days will be charged to the contractor.

27. Appropriate erosion controls and tree protection measures shall be in place prior to any site disturbance.

28. Fire extinguisher is required on all construction sites. Minimum of one per site, per floor at each stairwell or each storage shed. 2A10BC minimum size (51bs).

29. Standpipe system required for any construction over 30 feet in height. Required to maintained within one floor of top construction floor. Approved lighted stairway access required.

30. Construction site required to be kept clean, travel paths clear and stored combustible pile spread out.

31. Fire watches are required to be approved prior to implementing (does not apply for hot work). (Fire Prevention at 512-393-8480)

32. Hot work permit(s) required as per Chapter 38 of Fire Code.

33. If building is designed with an automatic sprinkler system, the system must be installed, inspected and operational before occupying building (includes furniture and staff).

34. All work in the right-of-way or COSM easement will be constructed and restored in accordance to current COSM details and specifications.

Public Rights-of-Way

1. Where there is a conflict between the drawings and the COSM specifications and details, the more stringent shall apply. In no case is a contractor or owner authorized to construct, build or develop in contrast with adopted COSM codes, standards or details.

2. Location of existing lines is approximate. The contractor shall verify the location and elevation of utilities prior to beginning construction. Conflicts with the proposed work should be brought to the attention of the Engineer of Record and the project inspector immediately. It shall be the contractor's responsibility to repair any damages made as a result of construction at the contractor's expense.

3. The contractor shall not attempt to determine locations by scaling from plans. While every attempt has been made to prepare these plans to scale, the Engineer of record should be consulted if clarifications are needed.

4. Emergency Telephone Numbers (numbers may change - contractor should verify numbers)

Tx 811 (formerly DigTess)	811
Police - Fire - EMS	911
TX DOT	512-353-1061
Century Telephone	512-754-5223
Southwestern Bell	1-800-464-7928
Gas Company	1-800-427-7142
Spectrum	855-578-5500
Grande	800-218-5725
University	512-245-2108 and/or 245-2508
Pedernales Electric	888-554-4732
Bluebonnet Electric	800-949-4414
SM Electric Utilities	512-393-8313
SM Water/WW Utilities	512-393-8010

5. The contractor is responsible for acquiring any temporary construction easements for the project. Documentation shall be provided to the Permit Center.

6. The contractor shall be responsible for relocating any COSM water and wastewater utility lines and service taps where required. The contractor shall be responsible for relocating any COSM traffic facilities where required at the contractor's expense.

7. Contractor shall keep driveways open and accessible during construction. Underground utilities crossing commercial driveways shall be Installed such that a minimum 10' traffic lane Is kept open at all times. Spoilage material shall not be mounded more than 18" high adjacent to a driveway or Intersection.

8. No construction operation relative to installation of utilities, including stockpiling of excavated materials, shall be permitted within the limits of existing pavements carrying traffic on state highways or COSM roads and streets unless specifically authorized in writing by the respective Authority Having Jurisdiction.

9. The contractor shall develop and submit a traffic control plan, which will show both daytime and nighttime operations during various phases of construction. The plan must be submitted to mypermitnow.org for review at least 14 days before construction begins. The plan must be approved before construction begins. The contractor shall designate a person who will be accessible on a 24-hour basis and responsible for the maintenance of the traffic control devices. This 24-hour contact number must be posted visible to the street on the job site and provided to the Public Services-Transportation Division. The contractor is responsible for furnishing the traffic control devices described in the plan and all costs associated with installation, maintenance and removal.

10. Any damage caused to any existing COSM water/wastewater, or storm sewer infrastructure will be repaired by the contractor to the satisfaction of the COSM at the contractor's expense prior to the Certificate of Occupancy or Certificate of Acceptance being issued.

11. When work is performed on private property or easements, all lawn grass, shrubbery, flowers, site utilities (including irrigation systems), trees and fences in the way of the work shall be removed, protected and replaced to their original condition and position upon completion of the work. All property monuments disturbed during construction shall be restored by a Registered Professional Land Surveyor at the contractor's expense.

12. The contractor must provide a Proof of Destination and truck route documents for trucks used to deliver or remove material or spoils from the job site upon request by inspectors.

13. All valves, manholes, SMEU electrical facilities and other appurtenances must remain accessible to COSM crews AT ALL TIMES during construction. These appurtenances shall also be raised to final grade, if within the project limits.

14. All assets constructed within the COSM's right-of-way must be submitted to the COSM with GPS coordinates at the end of each project. Coordinates will be submitted for all assets (including directional changes, valves, manholes, format, on the NAO 1983 State Plane Texas South Central FIPS 4204 Feet Coordinate System. All coordinates will be submitted in grid units. The required file type for coordinate data submission is *txt format.

15. The right-of-way will be kept clean at all times. Daily and sometimes more frequent sweeping may be required. A citation will be issued if the right-of-way is not kept clean, Do NOT wash, sweep or otherwise cause construction soil or debris to be deposited into any storm water drainage or conveyance system.

16. The Owner shall coordinate temporary relocation of mailboxes with the San Marcos Postmaster. Final location shall be in accordance with the local post office requirements.

17. All permanent pavement markings should be Type I and Type II per COSM specifications and details.

18. Any traffic changes, including signs, signals and/or pavement markings shall be the responsibility of the contractor.

19. All Material Testing shall follow the schedule below:

CITY OF SAN MARCOS TESTING SCHEDULE

Description:	*Rate:
Soils:	
Standard Proctor - Trench Backfill	Per Material Source
Standard Proctor - Raw Subgrade	Per Material Source or Street
Densities - Trench Backfill**	Per 200 LF Pipe per lift
Densities - Cement Stabilizer	Per 200 LF Pipe
Backfill Densities - Raw	Per 100 LF Street per lift
Subgrade** Densities - Driveways	Per 5 Driveways
Base:	
Sieve Analysis	Per 300 LF Street
Atterbergs Limits	Per 300 LF Street
Modified Proctor	Per Material Change
Densities of Compacted Base**	Per 300 LF Street per lift
Wet Ball Mill Test	Per Material Source
Triaxial Test	Per Material Source
Hot-Mix Asphalt Concrete (HMAC):	
Extraction, Sieve Analysis	Per 500 Tons or Day
Lab Density & Stability	Per 500 Tons or Day
Theoretical Density (Rice Method)	Per 500 Tons or Day
Temperature - During Lay-Down	Continuous as Needed
Thickness - In Place	Per 300 LF Street
% Air Voids - In Place	Per 300 LF Street
% Theoretical Density - In Place	Per 300 LF Street

CITY OF SAN MARCOS TESTING SCHEDULE

Description:	*Rate:
Concrete: (Unconfined Compression, 7, 14 & 28 Day)	
Curb and Gutter	Per 1000 LF C&G
Sidewalk	Per 4000 SF
Driveway	Per 2500 SF
Curb Inlets	Per 10 Inlets
Air, Slump & Compression - In Place	Per exposed structure
Slump & Compression -In Place	Per underground structure

* The above testing rates are only anticipated guidelines. The COSM reserves the right to require at owner's expense additional testing at the COSM's discretion.
** Testing must be conducted during backfill operations
*** Density will be per COSM details.

Erosion Control and Stormwater Management

1. It is unlawful for any general contractor, subcontractor or owner to allow or cause to be allowed, erosion of material from a construction site.

2. Appropriate erosion controls and tree protection measures shall be in place prior to any site disturbance. Site work permitted by a Site Plan Permit and/or a Demolition Permit cannot begin until erosion control and tree protection measures are in place.

3. All construction-related vehicle parking and activity (including employee personal vehicles and delivery vehicles) must be located within the Limits of Construction, with appropriate controls, or designated parking/access on APPROVED surfaces outside the Limits of Construction.

4. Certain erosion control measures identified by the COSM are to be employed to prevent erosion; however, these are only minimum standards. See construction details on Design & Construction Guide webpage, located under Engineering & Capital Improvements.

5. In the event of unusual site conditions, proximity to any water bodies and/or weather related events, more stringent requirements may be necessary (on-site or off) to maintain erosion and sedimentation control.

6. The owner or their designee is responsible for all changes, upgrades and continued maintenance of all erosion control and storm water management features at all times.

7. Erosion control measures and storm water management practices will be inspected by the COSM prior to and during the construction process:

Engineering Inspections is responsible for the inspection of Public Improvements Construction Projects (PICP) and infrastructure in the ROW to the property line or easement, excluding sidewalks and drive ways as noted under the driveway and sidewalk section.

Planning/Development Services is responsible for the inspection of all residential and commercial construction.

8. All designs to prevent the erosion of soil and the transport of sediment and debris from the construction site, or surrounding areas disturbed by construction shall, be maintained by the contractor during construction.

9. All streets adjacent to the project site must be kept clean of mud, rocks, trash, and building debris at all times. Daily or more frequent sweeping may be necessary, including the street center/turn lane and gutters. During muddy conditions, clean vehicle tires before leaving the site and/or remove mud, dust and dirt from public streets regularly throughout the day; sweep roads as soon as possible. Or prevent vehicles from leaving the site during muddy conditions. Migration of material or sediment from the site will require daily cleanup of paved streets and of drainage areas impacted by onsite or offsite construction. The contractor is required to take any necessary measures to prevent the migration of dust into the air due to construction activities.

10. All storm drain inlets within 200 feet of any permitted construction area must be protected per City detail (refer to #4 above).

11. Dewatering operations must use SWPPP-specified methods only. If such methods are only general or not applicable, pump from the top of the pool of water (rather than the bottom) and discharge to a vegetated, upland area (away from waterbodies or drainage) or use another type of filtration prior to discharge EVERY TIME. Refer to the EPA 2017 Construction General Permit, Section 2.4, as applicable.

12. The contractor or owner must have a designated person responsible for continuous (24 hours a day/7 days a week) monitoring of erosion control measures to ensure compliance with all federal, state, and local laws and regulations.

13. Do NOT wash, sweep or otherwise cause construction soil or debris to be deposited into any storm water drainage or conveyance system.

14. COSM MS4- Projects with a disturbed area of 1 to <5 acres must submit a signed, certified Small Construction Site Notice (CSN) to the COSM through MyPermitNow prior to construction activity starting. Projects with disturbed area of 5+ acres must submit a signed, certified Notice of Intent (NOi) to TCEQ; they must also submit the signed certified NOI and Large CSN received from TCEQ to the COSM through MyPermitNow prior to construction activity starting. COSM Is the MS4 operator; these submissions to the COSM meet the required initial notification to the MS4 operator. CSN must be displayed at a construction site In public view prior to the commencement of construction activities.

15. Contractor shall provide qualified personnel to perform SWPPP inspections on projects equal to 1 acre or greater. Qualified personnel shall have CISEC, CESSWI, or equivalent certification approved by the MS4.

16. Qualified personnel shall inspect the construction site at least once every seven calendar days. A project-specific SWPPP must be prepared in accordance with the requirements of the Construction General Permit and shall be designed and signed by a licensed professional engineer (Texas) with competence In this area as required by Texas Engineering Practice Act Section 137 and/or a Certified Professional in Erosion and Sedimentation Control (CPESC). The SWPPP must be onsite at all times and shall be made available to the City of San Marcos upon request.

Water Utility Notes

1. All taps to the COSM water system for private property shall be metered.

2. When a tap is proposed on an existing Asbestos Cement (AC) pipe the contractor will replace the AC pipe segment with an approve PVC pipe per City Standard Product List (SPL). If the proposed tap is less than 24 inches from an AC pipe joint the replacement of the AC pipe will require addition segments to ensure adequate tap and joint separation. New pipe will be connected to the existing AC pipe with and wide range coupling adaptor per City SPL.

3. A list of accepted metering devices can be found on the engineering webpage under SPL WW-144. All metering devices shall be located on public right-of-way in easement.

4. All water utility lines leading to private property (except some authorized small domestic water lines) shall be provided with a testable back flow prevention device approved by the AWWA and the COSM. See detail.

5. The back-flow prevention device must be located as close as possible to the public right-of- way on private property.

6. A backflow prevention device with a low-flow indicator is required on all dedicated fire lines as per COSM details.

7. Any bypass to a backflow prevention device must have a testable back flow prevention device at least equivalent to the primary line approved by the AWWA and the COSM.

8. It is the responsibility of the owner and contractor to verify the type and size of the backflow prevention device with the COSM's Water Services (512)393-8010, for the property served, prior to construction.

9. Accepted Metering Devices - See Standard Product List WW-144

10. Accepted Utility Line Types (verify use with Inspector)

Pipe Material	Use	Pipe Sizes	Classification
Cooper Tubing	Service Lines	1"	Type K
PVC	Service Lines	2" - 3"	Schedule 80
PVC	Distribution, Service Lines	4" - 12"	C900 DR 14
Ductile Iron	Fire Hydrant Lead Distribution	6"	C151 CI 350
Ductile Iron	Distribution Line	8" - 12"	C151 CI 350
Ductile Iron	Transmission Line	16" - 60"	C151 CI 250
PVC	Transmission Line	16" - 24"	C905 DR 18

11. Private property fire hydrants shall be RED - Public fire hydrants shall be factory coated aluminum based silver paint. No pre-owned hydrants permitted.

12. All utility lines shall be tested after all appurtenances (hydrants, sampling ports, valves, etc.) are installed complete in place and located at final grade. All utility lines shall be tested from gate valve to gate valve at 200 psi for 10 minutes and @ 150 psi for 2 hours. A fire line dedicated for a fire protection system shall be tested @ 200 psi for 2 hrs.

13. A licensed underground installer certified by the Texas Commission on Fire Protection must perform underground fire line installation (Fire Sprinkler System). Most plumbers and utility contractors do not meet this criteria! Please verify before construction.

14. COSM to be given 48-hour notice (required) prior to all testing of utility lines. COSM inspection required for all utility lines.

Public

All utility taps, line installations, extensions, or adaptations in the public right-of- way, up to and including the metering device, for all Public Improvement Construction Projects will be inspected by the Engineering Inspector.

Private

- All domestic water line installations, extensions, or adaptations on public or private property for all Site Plan Permits, including the valve, and meter will be inspected by a Building Inspector.

  Private utility lines utilized by any fire protection system (fire line), or utility combo line will be inspected by the Fire Prevention Office.

- All backflow prevention devices will be reviewed by the Backflow Prevention Manager (Public Services-Water Division) prior to installation.

15. All backflow prevention devices must be tested by a State licensed/certified back flow prevention assembly tester. Test reports shall be on a form as prescribed by the COSM-Public Services Water Division. All testers submitting inspection results must be registered prior to testing devices by the –Public Services Water Division. A copy of the test results are to be submitted to the COSM-Public Services Water Division and the COSM Inspector prior to activation of water service. A copy of the backflow test is to be attached to the back-flow prevention device that was inspected and/or tested.

16. All water lines leading to private property must provide a bacteriological test to the inspector noted in the inspections section above. All bacteriological samplings must be certified within 20 days of project acceptance. On all dead-end lines and lines not yet tied into a water system, an automatic flush valve shall be installed with an approved water meter. After the pressure tests and bacteriological samples have passed, the Contractor must give notice to the Engineering Inspector for activation of the device.

17. Fire hydrants must be placed or moved to finished elevation after installation per detail 511S-17-SM. Finished elevation is 18" to 24" from the center of the lowest connection to the adjacent grade.

18. Fire hydrant is rejoined within 100 feet of the Fire Department Connection (FDC) is building is equipped with a fire sprinkler system.

19. Fire hydrants are required to have a clear area of 5 feet. No plants, trees or obstacles allowed except as impact protection outline by Fire Code

20. Fire hydrants are required to be marked with a blue reflective marker In the roadway 6" to 10" off center of the roadway towards the hydrant. On corner lot installation, both roadways are required to be marked.

21. The underground contractor must submit a report (on company letterhead) to fireplan@sanmarcostx.gov indicating that the fire line is complete and has been flushed of all debris.

22. All fire hydrants that have not been inspected or flushed are considered "out of service" and are required to have a black plastic wrap covering the hydrant.

23. COSM will not perform the tie-In of a public service line to a private line.

24. It is the responsibility of the owner or contractor to tie to the COSM's line from the right-of-way or public easement to the private property line. It Is the licensed plumber/utility contractor responsibility to maintain proper slope and connection of system to the public connection.

25. Fire hydrants capable of producing the required GPM (based on construction type) must be located within 500 foot of the most remote portion of the building using accessible surfaced roadway for measurement.

26. Fire hydrants must be operational prior to beginning combustible construction.

27. All valves in a COSM right-of-way will be operated by COSM personnel only. The contractor may not operate any COSM owned valve. The general contractor will be fined if a water valve is operated without express written consent of the Water Utility, regardless of who operated the valve.

28. Only temporary water meters approved by the COSM are authorized for use on any fire hydrant (public or private).

29. Temporary meters may be relocated from one hydrant to another only by Water- Waste/Water personnel.

30. A fine will be imposed on operators using fire hydrants without meters, with unapproved meters, or failing to use approved backflow prevention or air gap protection.

31. Thrust blocks are not permitted. All fittings shall be mechanically restrained. Bell joints shall be mechanically restrained in accordance with the Engineer of Record's specifications based on site conditions. A joint restraint table, sealed by the Engineer of Record must be submitted with each set of plans. If a joint restraint table is not available, all joints must be mechanically restrained.

32. The service address must be posted and visible (as per COSM specifications) from the street prior to the installation of the meter as per Chapter 38 of local ordinances.

33. Disinfection sample taps shall be installed at proper locations (not more than 1000-foot intervals) along public water lines.

Wastewater

1. Required Equipment - The following are the acceptable materials for the type of lines or connections shown:

Public Sewer Lines - SDR 26 in the COSM right of way (as a minimum). See SPL WW227 &WW-227A

Private Sewer Lines - Schedule 40 or SDR 26 Approved connections - See SPL WW-354

2. Inspection

Engineering Inspections is responsible for inspection of all utility taps, line installations, extensions, and adaptations on all Public Improvement Construction Projects. See 510.3(26) Quality Testing for Installed Pipe-of the Modifications of Austin Specifications for moredetails.

- 4-psi minimum pressure test on lines

- Lines must be flushed immediately prior to the TV test

- TV test on all public lines (copy of video to Engineering Inspections)

- Mandrel test required 30 days after installation

Building Inspections is responsible for inspection of all utility taps, service laterals, and private lines on all Site Preparation Projects and all residential and commercial construction.

- Low-pressure air test with 5 PSI on all lines

- Force mains; 5 psi over working pressure with minimum of 50 psi, for 1 hour

3. All sewer lines shall be tested after all appurtenances are located at final grade.

4. All services must be six inch minimum and must have clean-outs; dual services shall have clean- outs on each line located no less than six feet apart at the property line. See detail 520s- 1-SM & 520S-3-SM for more details and TCEQ specifications.

5. All manholes to be cored (not chiseled) and lined with products from the Standard Products List. See specification 506.5F. Pipe connection to existing manholes and junction boxes for more details.

6. All manholes shall be tested per specification 506.6 prior to lining. All manholes are to be lined per SPL 511.

7. The COSM will not perform the tie-In of lines to privately owned and maintained lines or clean- outs. It Is the licensed plumber/utility contractor responsibility to maintain proper slope, connection and drainage of system to the public connection.

8. Pipe stub-outs must be provided and located in manholes to facilitate future expansion.

9. All commercial property must have a wastewater sampling port installed per the COSM's sample port detail 520-4B-SM, and wastewater collection system standard design criteria. The wastewater sampling port must not be located In a drive-thru, traffic lane, or driveway access area.

Driveways and Sidewalks

1. All sidewalks and driveway approaches will be inspected by the COSM.

Engineering Inspections will inspect the following items:
- All Commercial project driveway approaches and sidewalks
- Any new, extension or addition to a drive on a existing property (Driveway Permit or Infill New Residential)
- All new subdivision work inclusive of the street, curb, curb cut ramps to a public street, sidewalk and driveway access installed during initial construction prior to COSM acceptance of subdivision
- All Public Improvement Construction Projects

Building Inspections will inspect the following:
- All sidewalk construction and driveway access in development "build-out" after acceptance of subdivision by the COSM.

2. Meters, valves, or other obstructions are not permitted in sidewalks or driveways. All meters must be located in a public right-of-way or easement given by the property owner (and legally recorded).

3. Meters and other utility obstructions must be relocated by and at the expense of the own e r or contractor.

4. Driveway access grade at sidewalk cannot exceed 2%.

5. All sidewalks and driveways shall meet applicable TAS standards.

Public Street Construction

1. All new street construction in public right-of-way and easements will be Inspected by the Engineering Inspectors.

2. All street lights shown on the approved construction plans shall be active prior to project acceptance. If street light service is to be in the COSM's name, contact San Marcos Electric Utility, (512) 393-8300

3. Flexible Base & Sub-grade: Will follow the City specification noted In the 200: Serles Subgrade & Base Construction.

4. Cutback Asphaltic material (Prime Coat) shall be applied to the completed base course and allowed to set 24 hours before paving the roadway. An Emulsified Asphalt Tack Coat can be used in lieu of the prime coat and/or placed on the prime coat.

5. Asphalt must be at a temperature between 250° F and 350° F when discharged from the mixer and compacted using steel-wheel rollers, vibratory rollers and pneumatic-tire rollers.

6. The contractor or their testing technician shall check the density of the compacted asphalt at regular intervals. Samples of the asphalt shall be taken as the asphalt leaves the hopper of the paving machine before compaction and cores shall be taken at these sampling locations. A minimum of 3 samples shall be taken daily unless the total volume is determined to be small enough to warrant taking only one sample.

Electric Utility Notes

1. Electrical service will be provided in accordance with SMEU "Rules and Regulations" and "Line Extension Policy" within the PUC designated SMEU service area.

2. Electric Service in San Marcos Electric Utility (SMEU) Service Territory:

A. For non-emergency service, Contact SMEU 48 hours in advance to schedule electric service connection for new service or disconnection/reconnection for modified service.
   i. For Emergency Electric Service contractors may disconnect and reconnect temporary electric service without advanced notice. Contractor must contact SMEU within 24 hours to make permanent electric service connection.

B. SMEU must receive notification from the COSM Electrical Inspector that the Customer's electrical Installation has passed final electrical inspections before electric service is connected by SMEU personnel.

C. SMEU has the right to deny service connection for any identified electrical hazard.

3. For plan review of projects requiring electric service from San Marcos Electric Utility (SMEU), a minimum of the following items must be provided to SMEU by the property owner or contractor: a completed Electric Service Application, a set of customer drawings including plat drawings showing all easements, scaled elevation drawings for any structures that exceed a single story, and a total connected load estimate (including service voltage requirements). Contact San Marcos Electric Utility at 512-393-8300 for detailed plan review submittal requirements.

4. All services shall have a single disconnecting means in an approved location on the exterior or outside of the building served.

5. All electric disconnecting means and meters shall be assessable.

6. At the time of Phase 2 inspection, the meter sockets shall be labeled with 1" x 2" digitally printed vinyl stickers. Disconnect panel(s) shall be labeled with 2" x 4" digitally printed vinyl stickers. Panel must have address numbers, number of panel (ex. 2 of 4) and location of next disconnect panel. Both doors and meter socket must have permanent labeling affixed before SMEU will install meters. SMEU may deny meter connection If the required labelling Is not present.

7. Panel and socket markings are not allowed to be paint or marker.

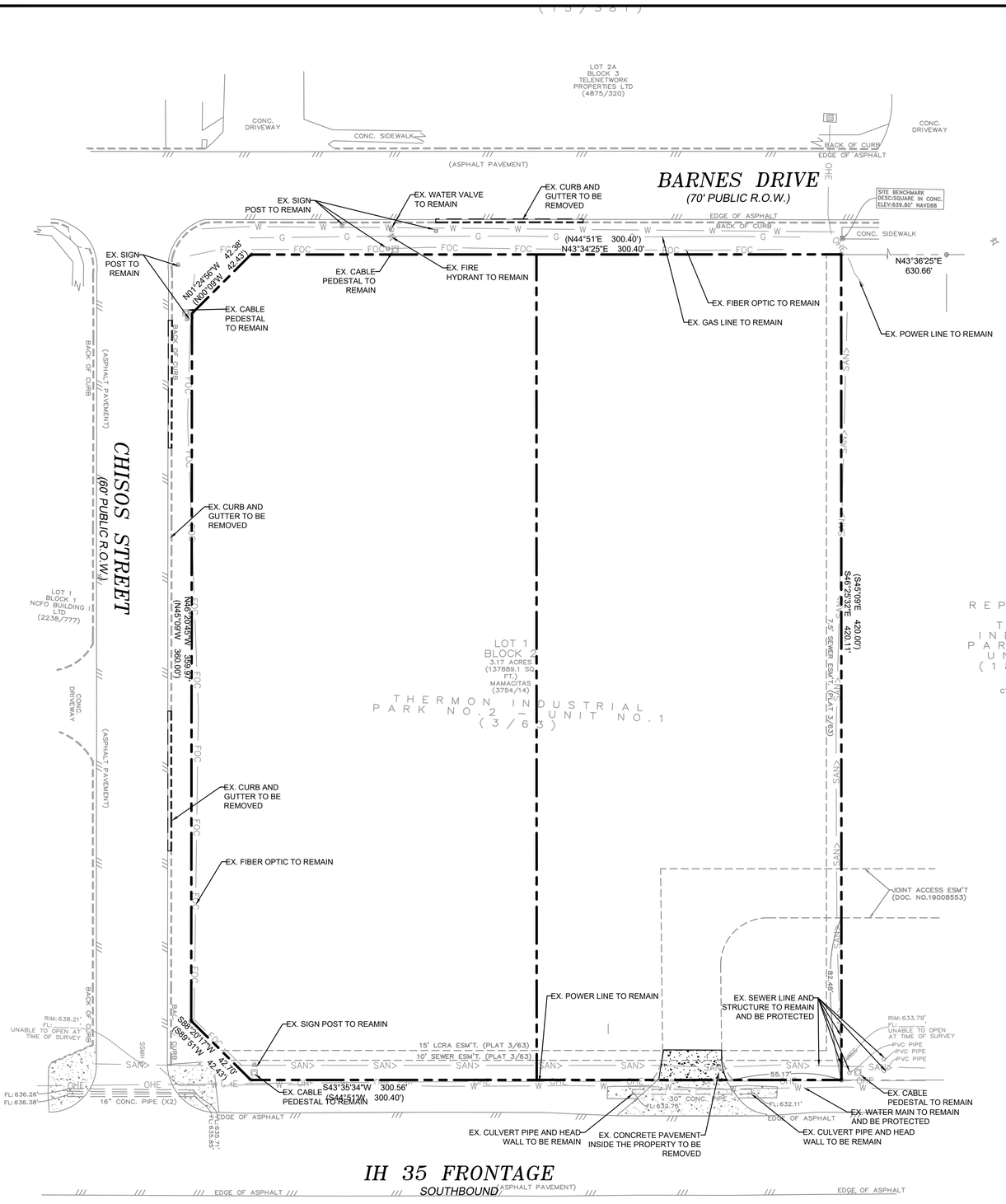
8. The service mast shall have at least two points of attachment to the building. One point of attachment must be within 12 inches of the service equipment. The service equipment may not be used to meet this requirement.

9. If electric overhead power lines exist in the project area, Texas Law Article 1436c, prohibits all activities in which persons or equipment may come within six (6) feet of energized overhead power lines and Federal Regulations, Title 29, Part 1910,180(i) and Part 1926.550(a)(15) require a minimum of 10 feet from these facilities. Where Contractor must work near overhead power lines, contact the service provider for the lines to be de-energized and/or moved at Contractor's expense. For non-emergency work, contact SMEU 48 hours in advance to schedule lines to be de-energized or moved.

10. Contact the local service provider for information on their specific installation requirements

San Marcos Electric Utility(SMEU)	512-393-8300
Pedernales Electric Cooperative	888-554-4732 #7525
Bluebonnet Electric Cooperative	800-842-7708
(Ask for Lockhart engineering dept.)	

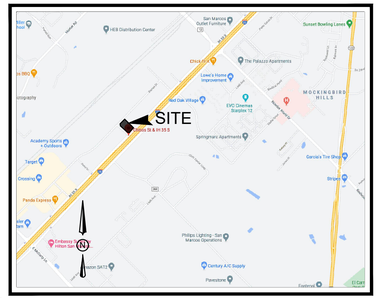
NOTE: This document is not meant or designed to be an all-inclusive document. The function of this 'requirements' document is to provide information on issues identified by the COSM inspection staff based on daily field operations and common issues. It is the Intent of this document to facilitate the construction process in common overlapping areas between COSM departments and divisions and private contractors. In all cases, contractors, subcontractors and owners are responsible for knowing and utilizing the state, federal, or COSM codes and laws where applicable. No code violations are "approved". COSM signed or reviewed plans are not authorizatlon to violate codes, laws, or ordinances. A copy of plans bearing a seal from Building Inspections and/or the Permit Center Is required to be available on-site at all times. Any changes or revisions to these plans must first be submitted to the COSM by the design professional for review and written authorization. A review seal from the COSM must be affixed to these revised plans and they must be available on- site at all times.



0 60

Scale: 1" = 30 ' Feet

LEGEND			
⊙	IRON PIPE FOUND	GM	GAS METER
⊙	IRON ROD FOUND	TP	TELEPHONE PEDESTAL
○	IRON ROD SET	CP	CABLE PEDESTAL
×	"X" IN CONCRETE	SSMH	SANITARY SEWER MANHOLE
▲	PK FOUND	STMH	STORM SEWER MANHOLE
⊕	CALCULATED POINT		ELECTRIC GROUND
■	CONCRETE MONUMENT		CONTROL POINT
	FIRE HYDRANT		UNDERGROUND UTILITY MARKER SIGN
	WATER METER		UNDERGROUND UTILITY TEST STATION
	WATER VALVE		SIGN POST
	CLEANOUT		ELECTRIC TRANSFORMER
	GAS VALVE		TRAFFIC SIGNAL BOX
	POWER POLE	P.U.E.	PUBLIC UTILITY EASEMENT
	DOWN GUY	D.E.	DRAINAGE EASEMENT
	ELECTRIC METER	B.L.	BUILDING LINE
	LIGHT POLE	(BRG.—DIST.)	RECORD CALL
	WOOD FENCE	GAS	EXISTING GAS
	CHAIN LINK FENCE	S	EXISTING SANITARY SEWER
	WIRE FENCE	FOC	EXISTING FIBER OPTIC
	METAL FENCE	W	EXISTING WATER
		E	OVERHEAD ELECTRIC LINE



VICINITY MAP
N.T.S.

DEMOLITION LEGEND

SAWCUT LINE — — — — — — —

AREA TO BE REMOVED

TREE NOTES

THE ARE NO EXISTING REGULATED
TREES IN OR OVERHANGING THE LOD/C.

CITY DEMOLITION NOTES

1. BEFORE ANY DEMOLITION STARTS, ALL EROSION/SEDIMENTATION CONTROLS MUST BE INSTALLED AND THEIR INSTALLATION APPROVED BY A CITY INSPECTOR AT AN ONSITE PRE-CON MEETING. [TXR150000 PART III.G.1. AND CITY CODE SECTION 86.529.(A) (1)].
2. IF THERE IS A DELAY OF MORE THAN 14 DAYS ANY TIME BETWEEN DEMOLITION COMPLETION AND CONSTRUCTION START, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER TXR150000 PART III.F.2.(B).III/CITY CODE SECTION 86.529(A)(1)(G). USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.

DEMOLITION GENERAL NOTES

1. ANY DEMOLITION IS TO BE PERFORMED IN STRICT CONFORMANCE WITH ALL APPLICABLE CITY, COUNTY AND STATE, AND/OR GOVERNING BODY'S STANDARDS.
2. EROSION AND SEDIMENT CONTROL MEASUREMENTS SHALL BE MAINTAINED AT ALL TIMES DURING DEMOLITION.
3. THE PURPOSE OF THIS DRAWING IS TO CONVEY THE OVERALL SCOPE OF WORK AND IT IS NOT INTENDED TO COVER ALL DETAILS OR SPECIFICATIONS REQUIRED TO COMPLY WITH GENERALLY ACCEPTED DEMOLITION PRACTICES. CONTRACTOR SHALL THOROUGHLY GET FAMILIARIZED WITH THE SITE, SCOPE OF WORK, AND ALL EXISTING CONDITIONS AT THE JOB SITE PRIOR TO BIDDING AND COMMENCING THE WORK. THE DEMOLITION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, OR PROCEDURES USED TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND IS LIABLE FOR THE SAFETY OF THE PUBLIC OR CONTRACTOR'S EMPLOYEES DURING THE COURSE OF THE PROJECT.
4. THE DEMOLITION PLAN IS INTENDED TO SHOW REMOVAL OF KNOWN SITE FEATURES AND UTILITIES AS SHOWN ON THE SURVEY. THERE MAY BE OTHER SITE FEATURES, UTILITIES, STRUCTURES, AND MISCELLANEOUS ITEMS BOTH BURIED AND ABOVE GROUND THAT ARE WITHIN THE LIMITS OF WORK THAT MAY NEED TO BE REMOVED FOR THE PROPOSED PROJECT THAT ARE NOT SHOWN HEREON. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE CITY, ENGINEER AND/OR OWNER PRIOR TO REMOVING ITEMS NOT SHOWN ON THE PLANS.
5. THE CONTRACTOR SHALL CONTACT RESPECTIVE UTILITY COMPANIES PRIOR TO DEMOLITION TO COORDINATE DISCONNECTION AND REMOVAL OF EXISTING UTILITIES WITHIN THE AREA OF WORK.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES THAT ARE INTENDED TO CONTINUE TO PROVIDE SERVICE WHETHER THESE UTILITIES ARE SHOWN ON THE PLAN OR NOT.
7. UPON DISCOVERY OF ANY UNDERGROUND TANKS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE. NO REMOVAL OF TANKS SHALL OCCUR UNTIL AUTHORIZED BY OWNER.
8. BUILDING AND APPURTENANCES DESIGNATED FOR DEMOLITION SHALL NOT BE DISTURBED BY THE CONTRACTOR UNTIL HE HAS BEEN FURNISHED WITH NOTICE TO PROCEED BY THE OWNER. AS SOON AS SUCH NOTICE HAS BEEN GIVEN, THE CONTRACTOR SHALL PERFORM THE DEMOLITION, UNDER THE DIRECTION OF THE OWNER'S REPRESENTATIVE.
9. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL UNSUITABLE MATERIAL AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL CITY, STATE, AND FEDERAL LAWS AND ORDINANCES.
10. AS SOON AS DEMOLITION WORK HAS BEEN COMPLETED, THE FINAL GRADE OF BACKFILL IN DEMOLITION AREAS SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT. CONTRACTOR TO PREVENT WATER FROM DRAINING ONTO ADJACENT PROPERTIES.
11. EXISTING TREES TO REMAIN SHOULD BE PROTECTED FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION.

Know what's **below.**
Call before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

DEMOLITION PLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

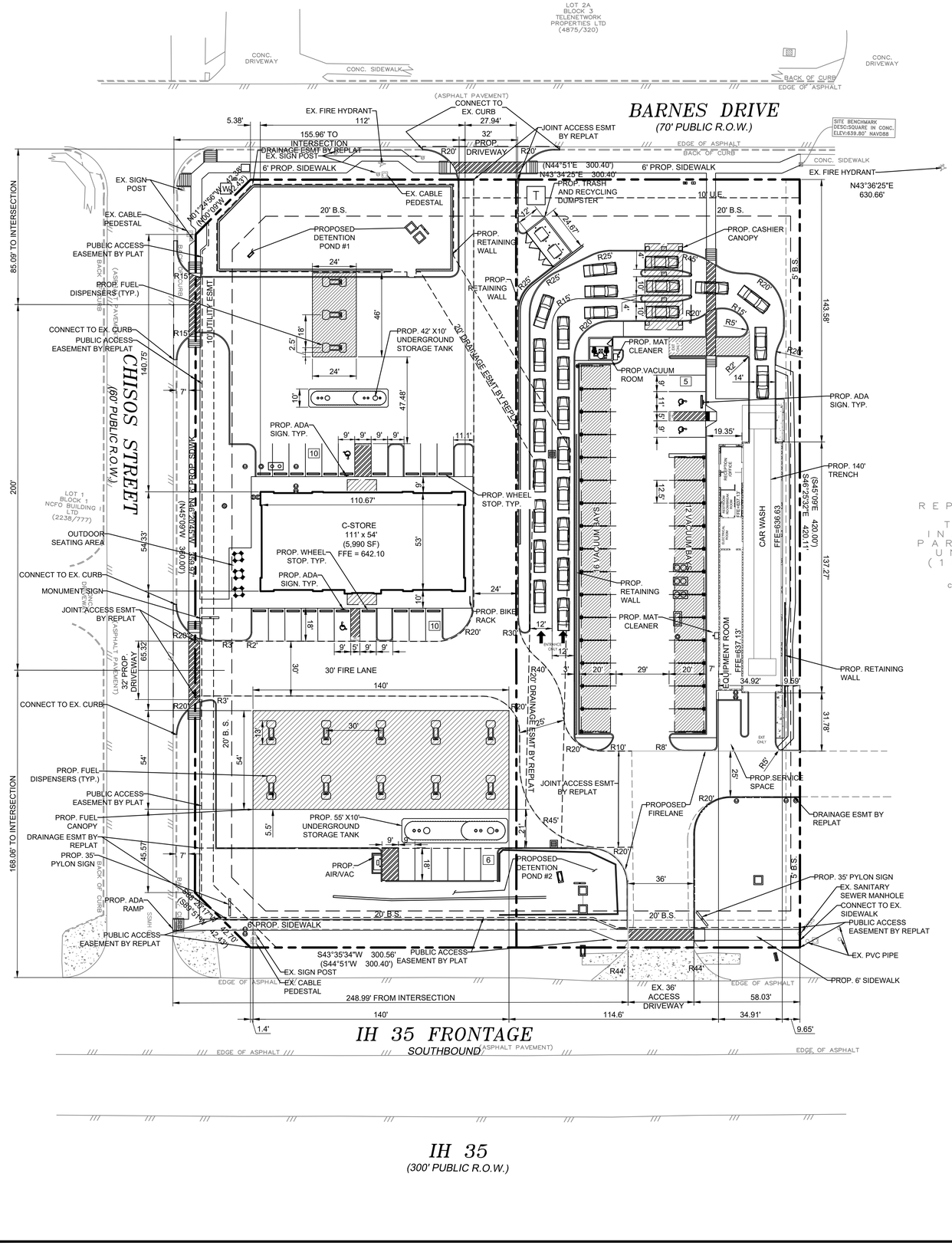
CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management
TX. P.E. FIRM #11525

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-2.0



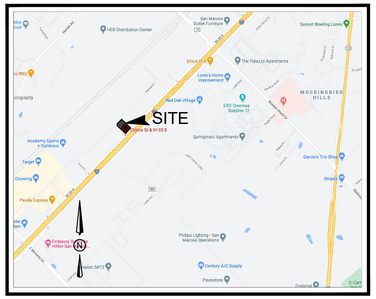
REPLAT OF LOT 2 THERMO INDUSTRI PARK NO. UNIT NO (1801005
LOT 2—A
BLOCK 2
CTEC SM PROPERTY L
(DOC.NO.18010956)

LEGEND			
IRON PIPE FOUND		GAS METER	
IRON ROD FOUND		TELEPHONE PEDESTAL	
IRON ROD SET		CABLE PEDESTAL	
"X" IN CONCRETE	SSMH	SANITARY SEWER MANHOLE	
PK FOUND	STMH	STORM SEWER MANHOLE	
CALCULATED POINT		ELECTRIC GROUND	
CONCRETE MONUMENT		CONTROL POINT	
FIRE HYDRANT		UNDERGROUND UTILITY MARKER SIGN	
WATER METER		UNDERGROUND UTILITY TEST STATION	
WATER VALVE		SIGN POST	
CLEANOUT		ELECTRIC TRANSFORMER	
GAS VALVE		TRAFFIC SIGNAL BOX	
POWER POLE		P.U.E. PUBLIC UTILITY EASEMENT	
DOWN GUY		D.E. DRAINAGE EASEMENT	
ELECTRIC METER		B.L. BUILDING LINE	
LIGHT POLE	(BRG.—DIST.)	RECORD CALL	
WOOD FENCE	GAS	EXISTING GAS	
CHAIN LINK FENCE	S	EXISTING SANITARY SEWER	
WIRE FENCE	FO	EXISTING FIBER OPTIC	
METAL FENCE	W	EXISTING WATER	
	E	OVERHEAD ELECTRIC LINE	

SITE LEGEND	
CONCRETE CURB	
SAW-CUT LINE	
FENCE	X
FIRE LANE	
STRIPING	
LANDSCAPED AREA	
PARKING SPACES	X
MONUMENT/PYLON SIGN	
WHEEL STOPS	
HANDICAP LOGO	
HANDICAP SIGN	
RAMP	
BOLLARD	
TRAFFIC ARROW	
FIRE HYDRANT	
DUMPSTER	
VEHICLE	

SITE SUMMARY TABLE		
	Gas Station w/ Convenience Store	Car Wash
STIE ACREAGE	1.672 AC (72,829.12 S.F.)	1.496 AC (65,147.33 S.F.)
ZONING	HC - HEAVY COMMERCIAL (SAN MARCOS WATER PROTECTION ZONE	
PROPOSED USE	GAS STATION	CAR WASH
BUILDING AREA	5,990 S.F.	5,600 S.F. FUNCTION AREA:670 S.F.
NUMBER OF STORIES	1	1
BUILDING HEIGHT	28'	29'-8"
BUILDING COVERAGE	8.22%	8.60%
FLOOR AREA RATIO	0.082	0.086
FIRE CODE	IFC 2015	
PARKING REQUIREMNET	1 SPACE PER 250 GFA	2 SPACES PER 1,000 S.F.; PLUS QUEUE SPACES FOR MINIMUM OF 5 CARS
REGULAR PARKING REQUIRE	23	2
HANDICAP PARKING REQUIRED	1	1
HANDICAP PARKING PROVIDED	2	2
TOTAL PARKING PROVIDED	24	5
IMPERVIOUS AREA	56697.44 S.F. (77.85%)	45,986.51 S.F. (70.59%)
PERVIOUS/LANDSCAPE AREA	16,134.88 S.F. (22.15%)	19,160.82 S.F. (29.41%)





VICINITY MAP
N.T.S.

SITE GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE CITY OR LOCAL JURISDICTION STANDARDS.
2. THE LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS IS TAKEN FROM AS-BUILTS, UTILITY PLANS OR SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE OWNERS OF SUCH UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA TO CONFIRM THEIR EXACT LOCATION AND TO DETERMINE WHETHER ANY ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL UNDERGROUND UTILITIES. IF EXISTING UNDERGROUND UTILITIES ARE DAMAGED, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPAIRING THE UTILITY.
3. WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR THE UTILITIES OR SERVICE LINES WITH THE SAME TYPE OF ORIGINAL MATERIAL AND CONSTRUCTION, OR BETTER, UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS, AT HIS OWN COST AND EXPENSE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS WITH UTILITIES.
4. ALL EXCAVATIONS, TRENCHING AND SHORING OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE U. S. DEPARTMENT OF LABOR, OSHA, CONSTRUCTION SAFETY AND HEALTH REGULATIONS AND ANY AMENDMENTS THERETO.
5. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES, FENCES, DRAINAGE DITCHES, DRIVEWAYS, PRIVATE YARDS AND ROADWAYS.
6. ANY CHANGES NEEDED AFTER CONSTRUCTION PLANS HAVE BEEN RELEASED, SHALL BE APPROVED BY THE CITY ENGINEER. THESE CHANGES MUST BE RECEIVED IN WRITING.
7. THE CONTRACTOR SHALL PROVIDE "RED LINED" MARKED PRINTS TO THE ENGINEER PRIOR TO FINAL INSPECTION INDICATING ALL CONSTRUCTION WHICH DEVIATED FROM THE PLANS OR WAS CONSTRUCTED IN ADDITION TO THAT INDICATED ON THE PLANS.

Existing Slope Map Table Out of EARZ and SMRC							
Zone	Slope Range	Area (SF)	Area (Acres)	Impervious cover percentage allowed	Impervious cover allowed (SF)	Imperivous cover Existing Condition (SF)	Impervious Cover Proposed Condition (SF)
Site Area	***All slopes	138,085.20	3.17	75%	103564	0	102,831.70
	15%-25%	0	0.00	35%	0	0	0
	25% and greater	0	0.00	20%	0	0	0
Zone	Slope Range	Area (SF)	Area (Acres)	Impervious cover percentage allowed	Impervious cover allowed (SF)	Imperivous cover Existing Condition (SF)	Impervious Cover Proposed Condition (SF)
NOT APPLICABLE Water Quality Buffer Zone	*0%-15%	0	0.00	30%	0	0	0
	15%-25%	0	0.00	20%	0	0	0
	25% and greater	0	0.00	10%	0	0	0
NOT APPLICABLE Water Quality Zone	All slopes	0	0.00	0%	0	0	0

811 Know what's below. Call before you dig.

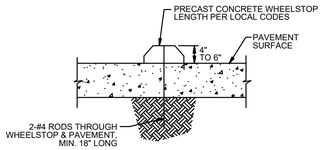
NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

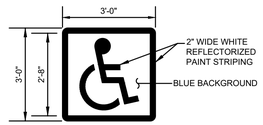
SITE PLAN
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management
TX. P.E. FIRM #11525

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-3.0

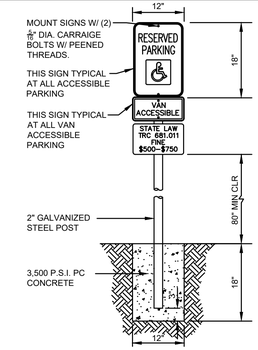


PRECAST CONCRETE WHEEL STOP DETAIL
N.T.S.

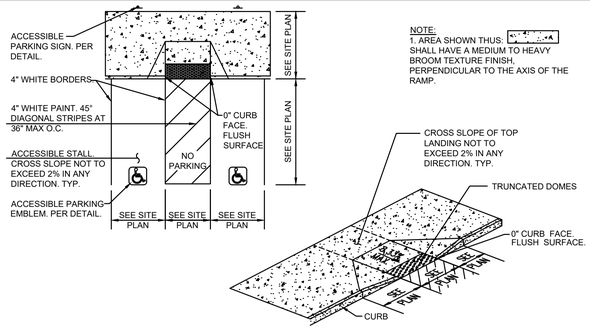


NOTES:
1. STENCIL ONE SYMBOL ONTO PARKING SURFACE IN EACH ACCESSIBLE STALL.
2. LOCATE PER ACCESSIBLE PARKING STALL DETAIL(S).
3. ALL LINES 2" WIDE PAINTED ON WHITE ON BLUE BACKGROUND.

ACCESSIBLE PARKING EMBLEM DETAIL
N.T.S.



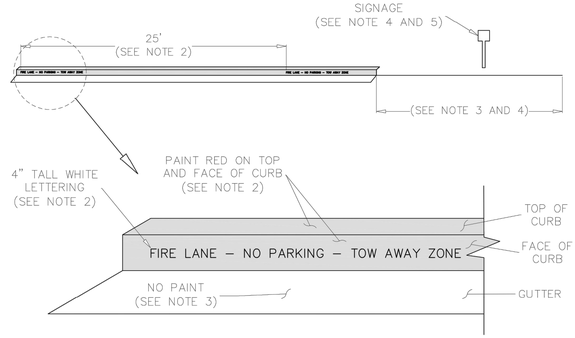
ACCESSIBLE PARKING SIGN DETAIL
N.T.S.



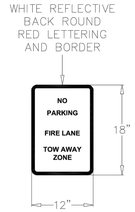
ACCESSIBLE PARKING STALL DETAIL
N.T.S.

CURB AND GUTTER

LAYDOWN/RIBBON CURB OR NO CURB AND GUTTER

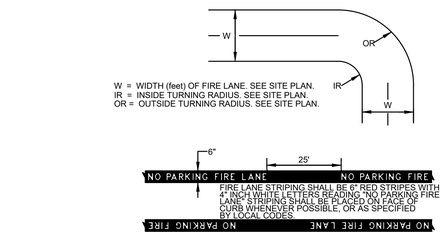


NOTE:
1. ALL CURBS TOUCHING THE FIRE LANE AS SHOWN ON THE STRIPING PLAN SHALL BE STRIPED AS SHOWN ON THIS DETAIL
2. TOP AND FACE OF CURB PAINTED RED. WITH 3" – 4" HIGH WHITE LETTERS ON FACE OF CURB "FIRE LANE – NO PARKING – TOW AWAY ZONE" EVERY 25'.
3. NO PAINT ON GUTTERS, PAVEMENT OR LAYDOWN CURBS.
4. SIGNAGE MAY BE REQUIRED IN AREAS WHERE THE CURB FOR A FIRE LANE DOES NOT EXIST.
5. WHERE REQUIRED, SIGNS SHALL COMPLY WITH SECTION D103.6 OF THE INTERNATIONAL FIRE CODE.



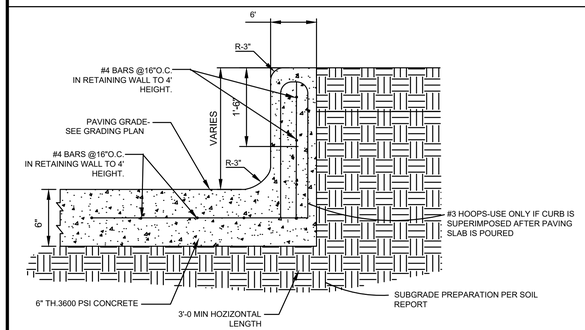
SIGNAGE
SEE NOTE 5

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	FIRE LANE STRIPING	
RECORDED COPY SIGNED BY LAURIE MOYER, P.E.	6-30-2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	900-FLS-SM N.T.S. STANDARD DETAIL



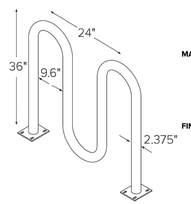
FIRE LANE MARKING

FIRE LANE DETAIL
N.T.S.



VARIABLE HEIGHT CURB W/RETAINING WALL DETAIL
N.T.S.

WAVE RACK
Submittal Sheet

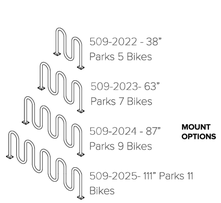


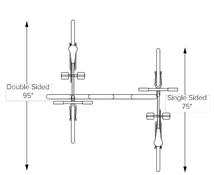
CAPACITY
509-2022: 5 Bikes
509-2023: 7 Bikes
509-2024: 9 Bikes
509-2025: 11 Bikes

MATERIALS
- ☐ **Standard** 2.375" OD Schedule 40 Steel Pipe
- ☐ **Lightweight** 2.375" OD Schedule 10 Steel Pipe

FINISHES
- ☐ **Galvanized** An after fabrication hot clipped galvanized finish is our standard option.
- ☐ **Powder Coat** Our powder coat finish assures a high level of adhesion and durability by following these steps: 1. Sandblast 2. Epoxy primer electrostatically applied 3. Final thick TGIC polyester powder coat
- ☐ **Thermoplastic** In addition to an increased thickness (8-10mils), the thermoplastic finish covers a galvanized layer and offers superior impact resistance over powder coating.
- ☐ **Stainless** Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.

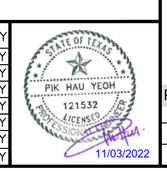
MOUNT OPTIONS
- ☐ **In-ground** In ground mount is embedded into concrete base. Specify in ground mount for this option.
- ☐ **Surface** Foot Mount has two 5"x6"x.25" feet with four anchors per foot. Specify foot mount for this option.





thepark AND FACILITIES CATALOG
www.theparkcatalog.com | 1-800-695-3503

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



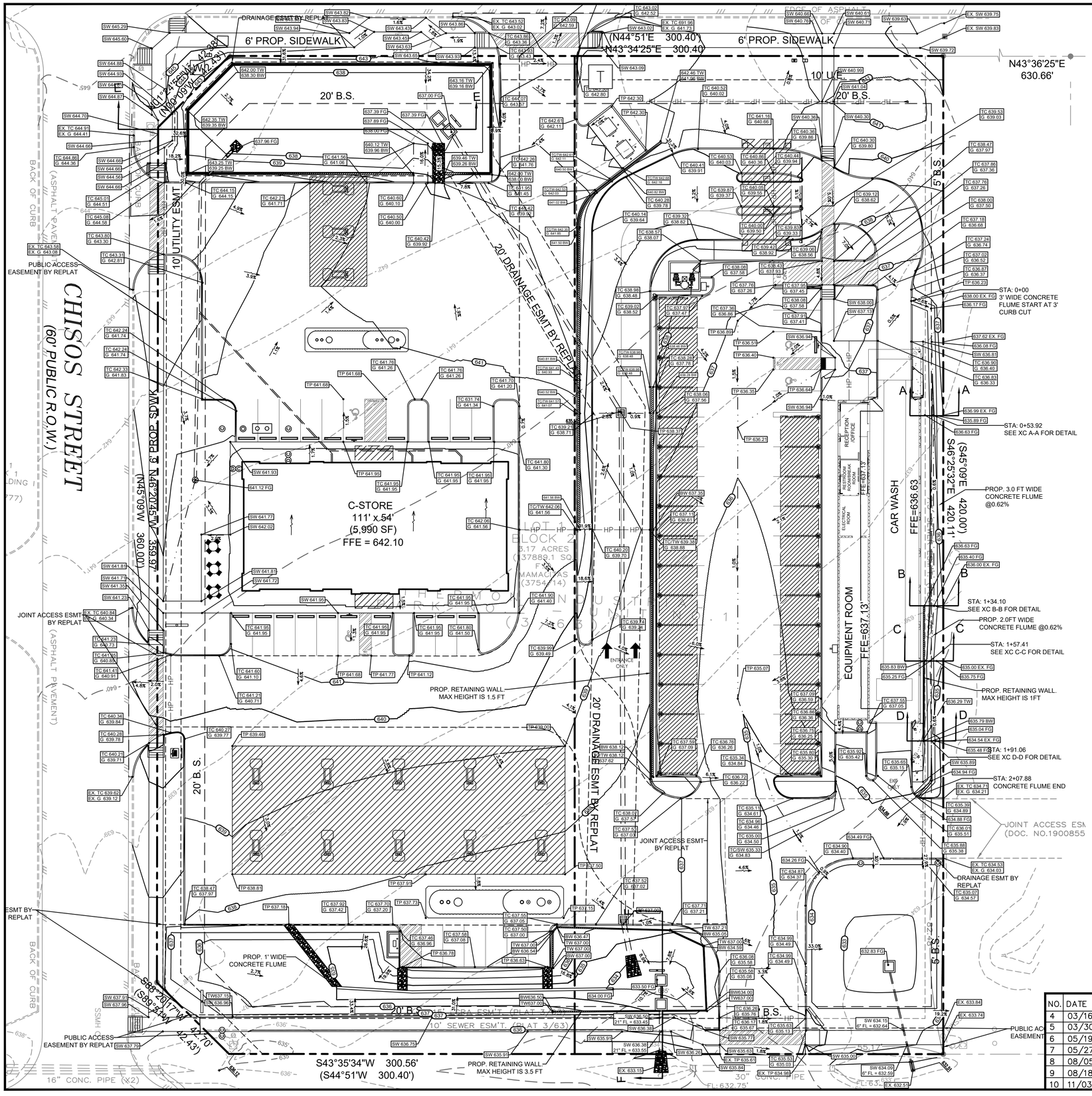
SITE DETAILS
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

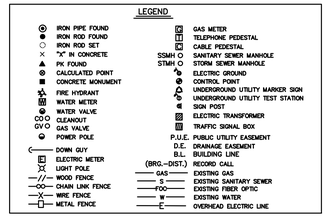
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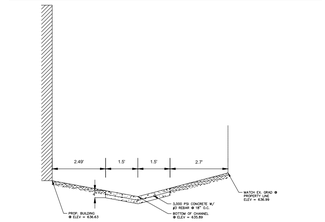
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P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103-20	C-3.1

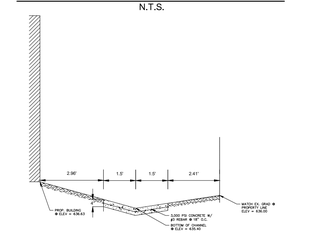
TX. P.E. FIRM #11525



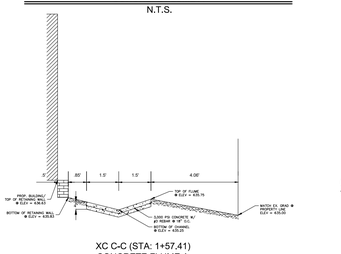




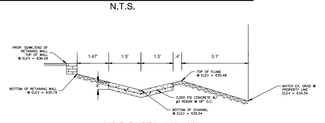
XC A-A (STA: 0+53.92)
CONCRETE FLUME A
N.T.S.



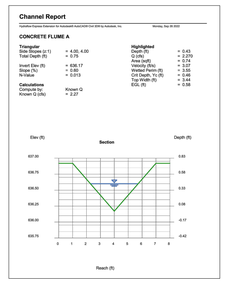
XC B-B (STA: 1+34.10)
CONCRETE FLUME A
N.T.S.



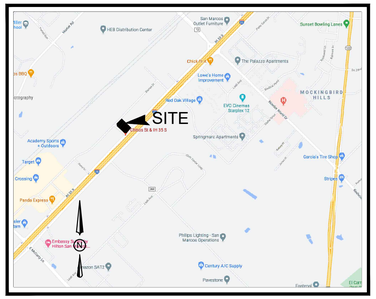
XC C-C (STA: 1+57.41)
CONCRETE FLUME A
N.T.S.



XC D-D (STA: 1+91.06)
CONCRETE FLUME A
N.T.S.







VICINITY MAP
N.T.S.

GRADING LEGEND

EXISTING ELEVATION	464.00 EX
EXISTING MINOR CONTOURS	464
EXISTING MAJOR CONTOURS	465
MINOR CONTOURS	464
MAJOR CONTOURS	465
SWALE	
HIGH POINT	HP HP HP HP
STORM PIPE	
RETAINING WALL	
FLOW PATH	
RIP RAP	
FINISH FLOOR ELEVATION	467.00 FF
TOP OF CURB ELEVATION	466.00 TC
GUTTER ELEVATION	465.50 G
SIDEWALK ELEVATION	465.00 SW
TOP OF PAVEMENT	464.00 TP
GROUND ELEVATION	463.00 FG
DRAINAGE FLOW DIRECTION	1%
GRATE INLET	
SANITARY SEWER CLEANOUT	©
SANITARY SEWER DOUBLE CLEANOUT	ⓒⓒ
DOMESTIC WATER METER	W
IRRIGATION METER	

GRADING GENERAL NOTES

1. ALL SURPLUS EXCAVATION AND WASTE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT SHALL BE HIS SOLE RESPONSIBILITY TO REMOVE SUCH SURPLUS EXCAVATION AND WASTE MATERIAL FROM THE SITE TO A PUBLIC DUMP SITE APPROVED FOR THE DISPOSAL OF SUCH MATERIALS. IF SURPLUS EXCAVATION IS REMOVED FROM THIS SITE TO ANOTHER PROPERTY, IT SHALL BE PLACED ON SUCH PROPERTY WITH THE WRITTEN CONSENT OF THE OWNER(S) OF SUCH PROPERTY. A COPY OF SUCH WRITTEN CONSENT SHALL BE PROVIDED TO THE OWNER. IF THE CONTRACTOR WISHES TO DISPOSE OF SURPLUS EXCAVATION ON-SITE, IT SHALL BE ONLY WITH THE PRIOR APPROVAL OF THE OWNERS PROJECT REPRESENTATIVE AND CARE SHOULD BE TAKEN TO AVOID BLOCKING NATURAL DRAINAGE AND INCREASING STEEP SLOPES. THE CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN STAKING AND TO VERIFY PROJECT ELEVATIONS. "MATCH EXISTING" SHALL BE UNDERSTOOD TO APPLY TO BOTH VERTICAL ELEVATION AND HORIZONTAL ALIGNMENT.
2. THE CONTRACTOR SHALL PREPARE ALL LANDSCAPE AREAS INCLUDING STREET RIGHT-OF-WAY AREAS TO AN ACCEPTABLE SUBGRADE CONDITION IN ACCORDANCE WITH THE LANDSCAPE PLANS. IF THE CONTRACTOR IS NOT EMPLOYED TO PROVIDE AND INSTALL LANDSCAPING, HE SHALL PREPARE A FINISHED AND COMPACTED SUB-GRADE IN THE LANDSCAPING AREAS.
3. NO SLOPES TO EXCEED 3H:1V WITHOUT SLOPE STABILIZATION.

CITY GRADING NOTES

IF THERE IS A BREAK OF MORE THAN 14 DAYS WHILE GRADING AND/OR BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START WHERE NO WORK IS DONE ON A SITE PORTION(S) WITHIN THE LIMITS OF CONSTRUCTION, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER TXR150000 PART III.F.2.(B).III/CITY CODE SECTION 86.529(A)(1)(G). USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.

811 Know what's **below.** **Call** before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

GRADING PLAN

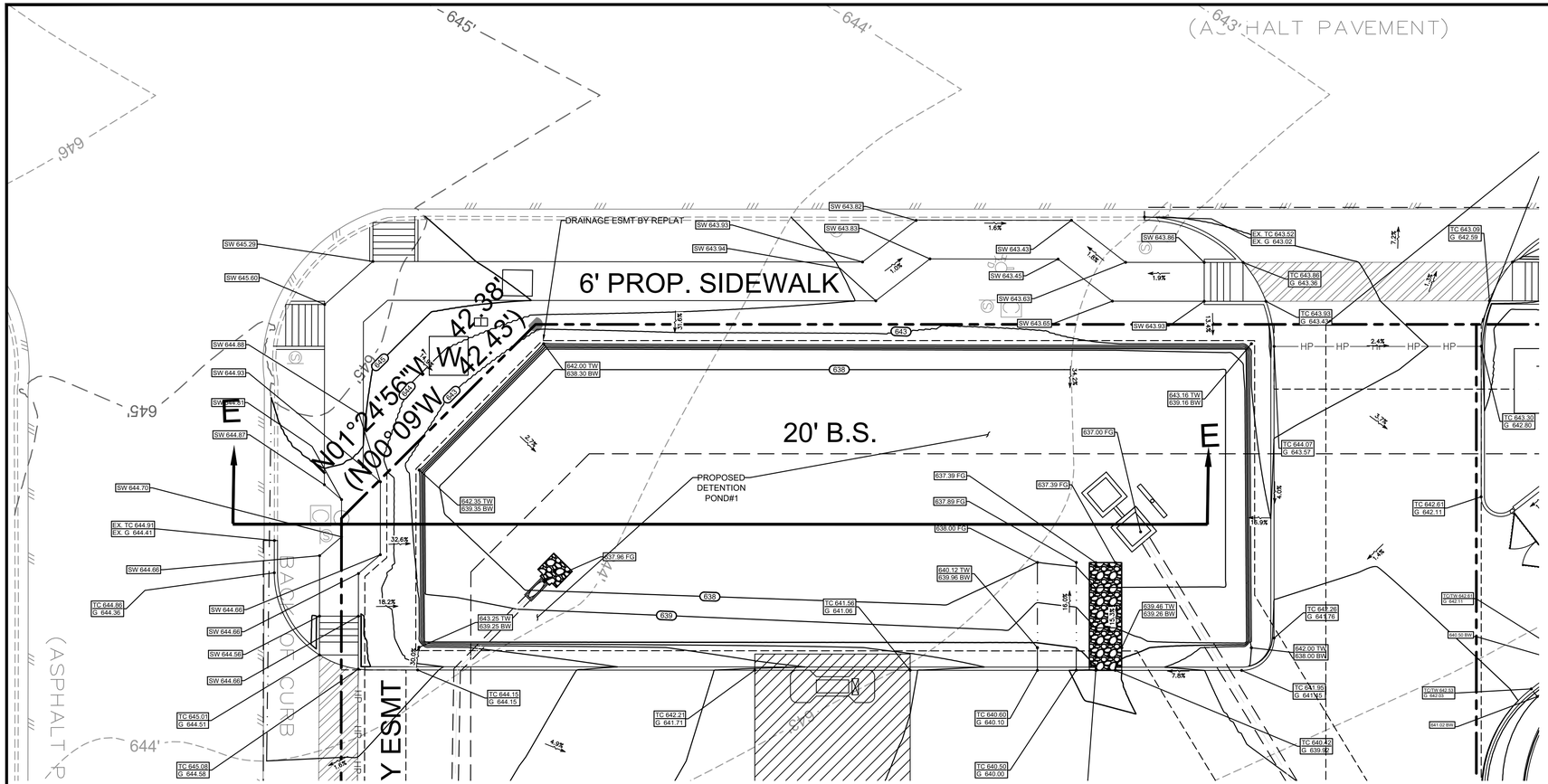
CAR WASH & GAS STATION
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CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

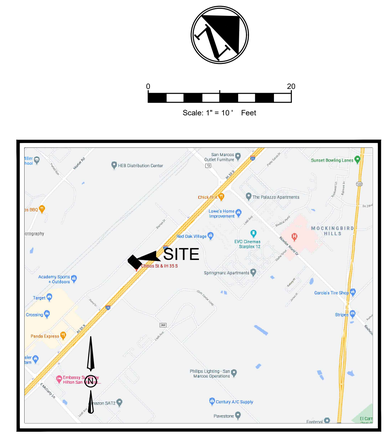
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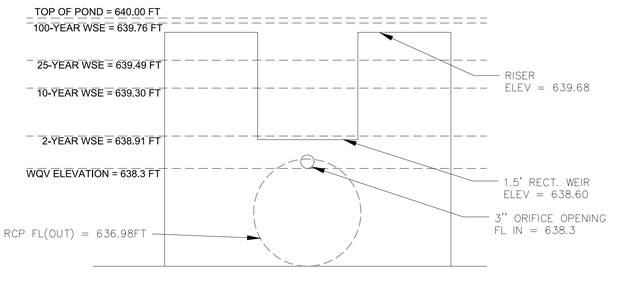
P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10–26–20	SEE SCALE BAR	103–20	C-4.0

TX. P.E. FIRM #11525



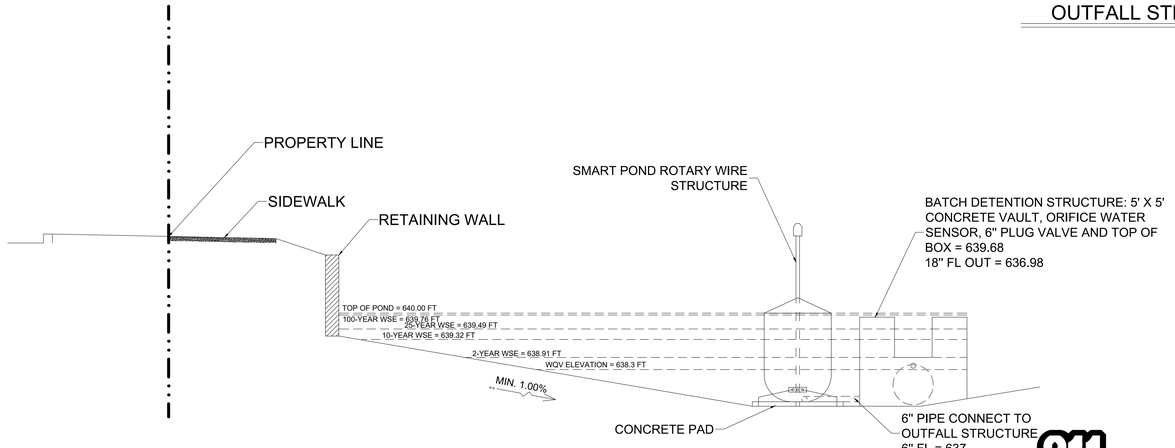


VICINITY MAP
N.T.S.



DETENTION POND#1
OUTFALL STRUCTURE DETAILS
N.T.S.

DETENTION POND#1 CALCULATION			
CONTRIBUTING AREA		DA-1	
IMPERVIOUS AREA		28749.6 S.F. (71.74%)	
EVENT(ye	Qproposed(cfs)	WSE(ft)	Max Stor(cuft)
2	1.039	638.91	5332
5	2.157	639.13	6446
10	3.128	639.3	7302
25	4.457	639.49	8332
50	5.672	639.64	9131
100	7.93	639.76	9741
Top of Pond (ft)		640	
Pond Volume (cuft)		11004	



DETENTION POND#1 PROFILE
XC E-E
N.T.S.

Know what's **below.**
Call before you dig.

DETENTION POND #1

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9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

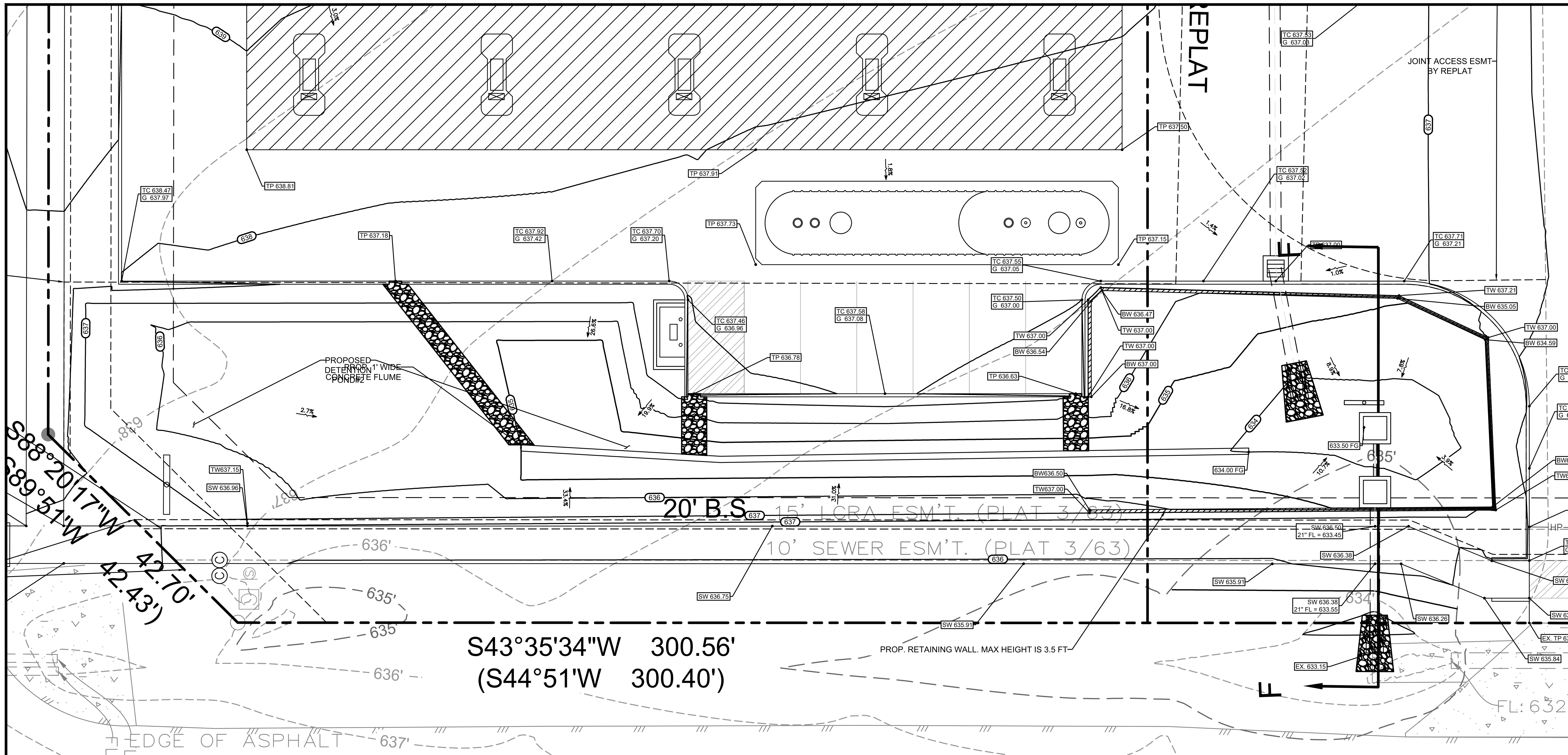
STATE OF TEXAS
PIK HAU YEOH
121532
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PROFESSIONAL ENGINEER
11/03/2022

POND PLAN-1
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

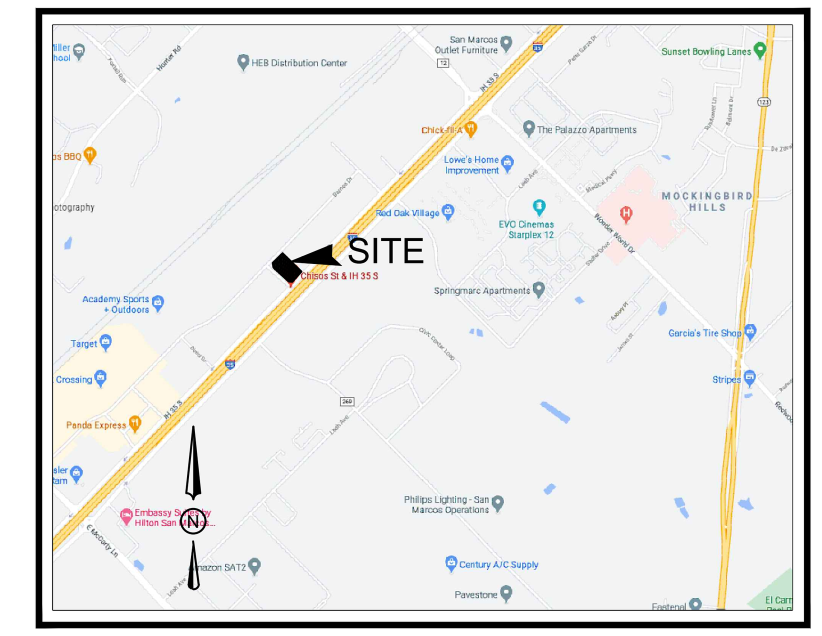
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AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-4.1

TX. P.E. FIRM #11525

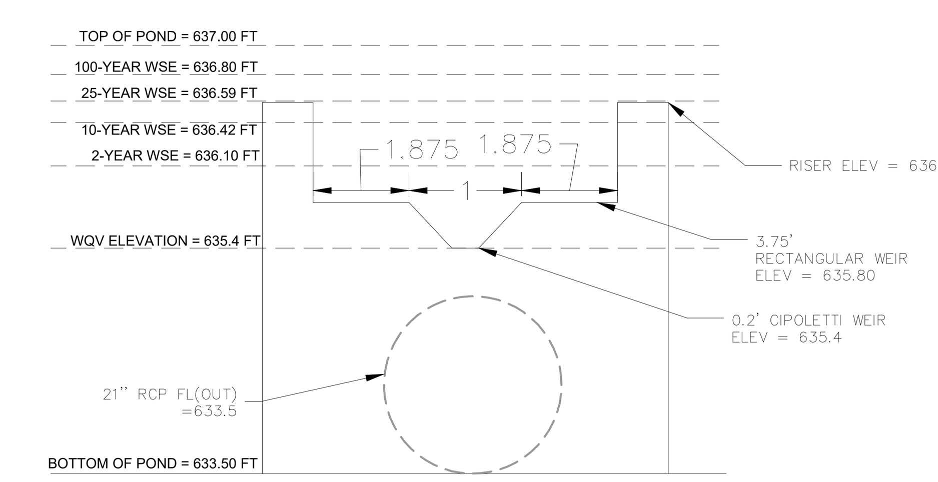


DETENTION POND #2



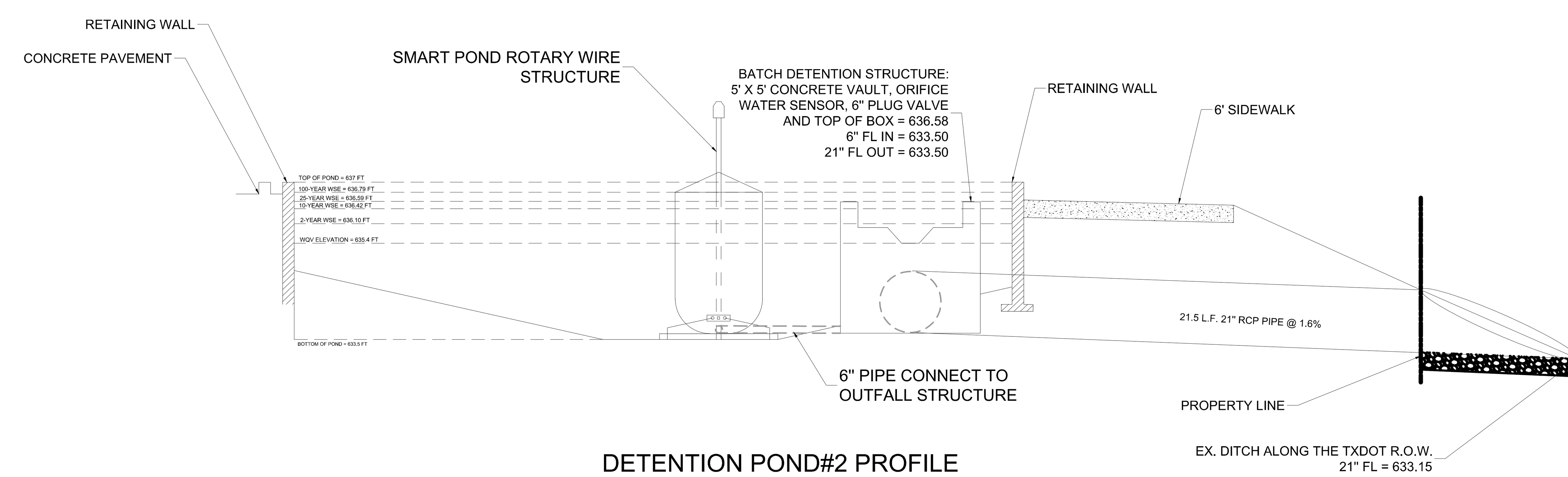
VICINITY MAP

N.T.S.



DETENTION POND#2
OUTFALL STRUCTURE DETAILS
N.T.S.

DETENTION POND#2 CALCULATION			
CONTRIBUTING AREA	DA-2,DA-3		
IMPERVIOUS AREA	36590.4 S.F. (73.04%)		
EVENT(ye	Qproposed(cfs)	WSE(ft)	Max Stor(cuft)
2	2.428	636.10	5078
5	4.753	636.28	6122
10	6.815	636.42	6907
25	9.67	636.59	7840
50	12.73	636.68	8383
100	16.16	636.80	9030
Top of Pond (ft)	637		
Pond Volume (cuft)	10184		



DETENTION POND#2 PROFILE
XC F-F
N.T.S.

Know what's below. Call before you dig.

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4	03/16/2022	4th SPP SUBMITTAL	AY
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10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS PIK HAU YEOH 121532 LICENSED PROFESSIONAL ENGINEER 11/03/2022

POND PLAN-2

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

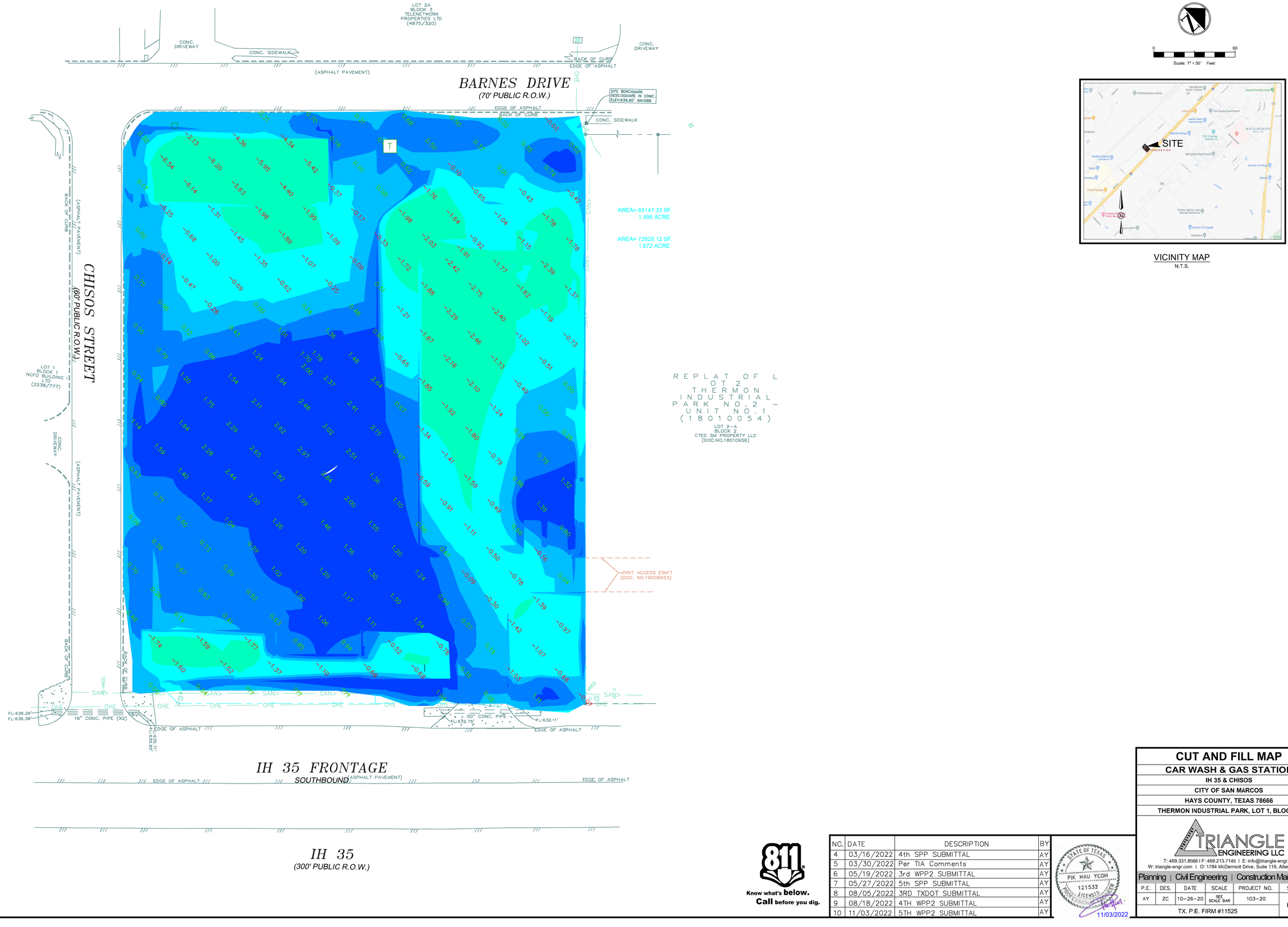
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TX. P.E. FIRM #11525



VICINITY MAP
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STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

CUT AND FILL MAP

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

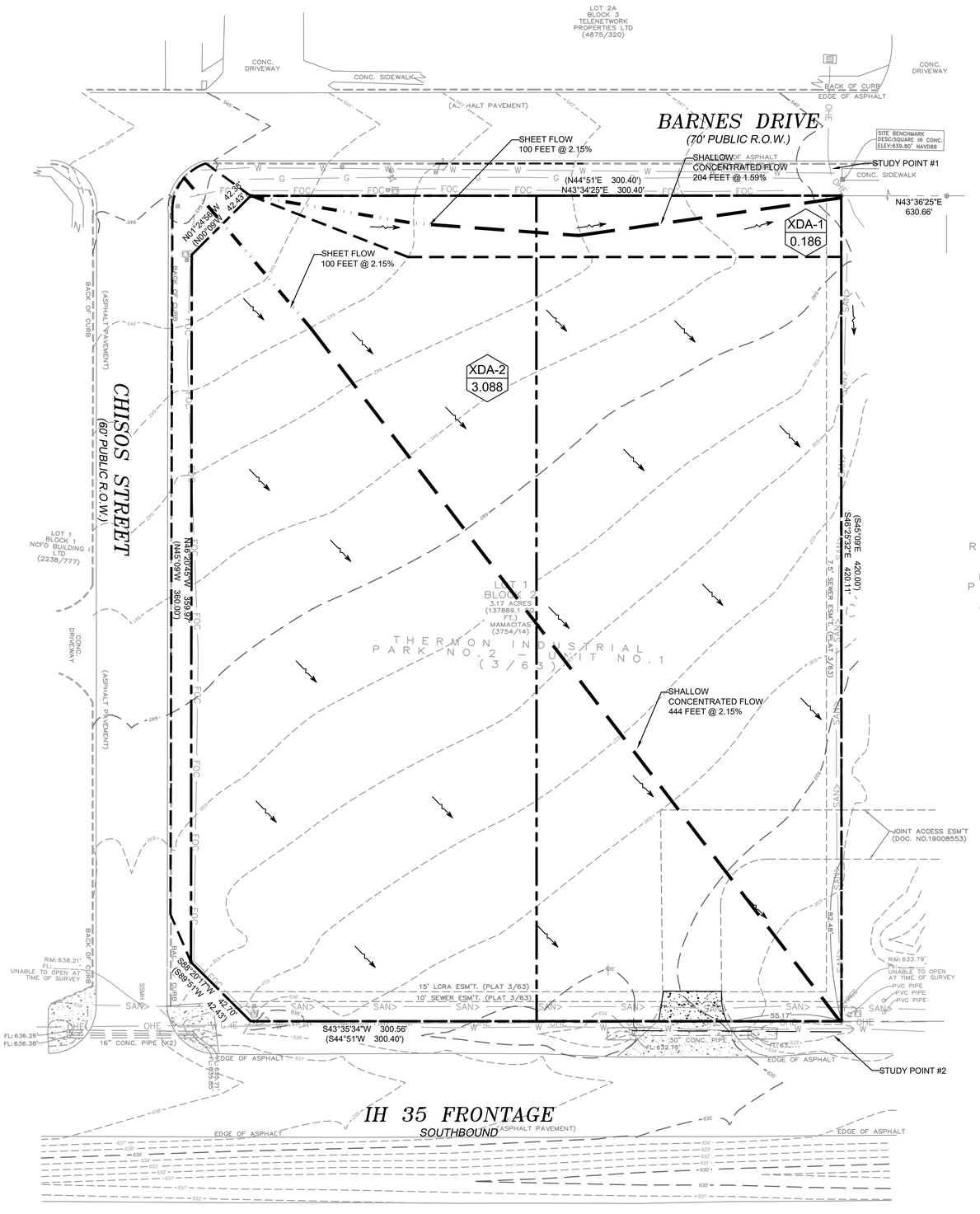
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-4.3

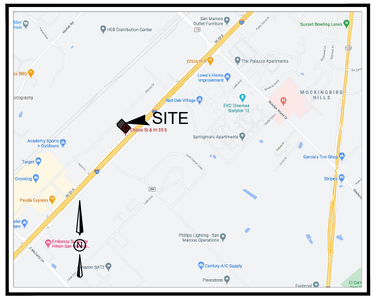
TX. P.E. FIRM #11525





LEGEND

IRON PIPE FOUND		GAS METER	
IRON ROD FOUND		TELEPHONE PEDESTAL	
IRON ROD SET		CABLE PEDESTAL	
"X" IN CONCRETE	SSMH	SANITARY SEWER MANHOLE	
PK FOUND	STMH	STORM SEWER MANHOLE	
CALCULATED POINT		ELECTRIC GROUND	
CONCRETE MONUMENT		CONTROL POINT	
FIRE HYDRANT		UNDERGROUND UTILITY MARKER SIGN	
WATER METER		UNDERGROUND UTILITY TEST STATION	
WATER VALVE		SIGN POST	
CLEANOUT		ELECTRIC TRANSFORMER	
GAS VALVE		TRAFFIC SIGNAL BOX	
POWER POLE	P.U.E.	PUBLIC UTILITY EASEMENT	
DOWN GUY	D.E.	DRAINAGE EASEMENT	
ELECTRIC METER	B.L.	BUILDING LINE	
LIGHT POLE	(BRG.—DIST.)	RECORD CALL	
WOOD FENCE	GAS	EXISTING GAS	
CHAIN LINK FENCE	S	EXISTING SANITARY SEWER	
WIRE FENCE	FOC	EXISTING FIBER OPTIC	
METAL FENCE	W	EXISTING WATER	
	E	OVERHEAD ELECTRIC LINE	



VICINITY MAP
N.T.S.

PRE-DRAINAGE LEGEND

EXISTING MINOR CONTOURS	464
EXISTING MAJOR CONTOURS	465
DRAINAGE DIVIDE	
DRAINAGE AREA NO.	XDA-X
DRAINAGE AREA ACREAGE	X.XX
DRAINAGE FLOW DIRECTION	

RAINFALL DEPTHS FOR SCS 24 HR PRECIPITATION (inches)

2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
4.15	5.54	6.92	9.07	11.00	13.20

NOTE:

THE WHOLE SITE IS IN UNDEVELOPMENT CONDITION WITH GRASS AREA AND THE HEB SOIL IS TYPE D.

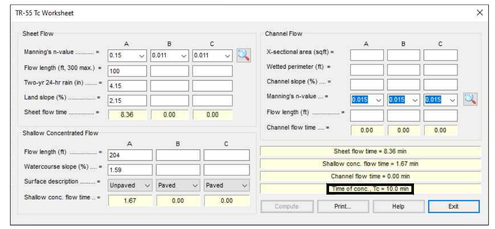
PRE DEVELOPMENT RUNOFF RATE SUMMARY (SCS METHOD)

DRAINAGE BASIN	DRAINAGE AREA (AC)	CN#	TC (MIN)	2 yr (CFS)	5 yr (CFS)	10 yr (CFS)	25 yr (CFS)	50 yr (CFS)	100 yr (CFS)	REMARKS
XDA-1	0.186	80	10	0.37	0.578	0.79	1.12	1.41	1.74	SHEET FLOW CITY ROW AT DISCHARGE POINT #1
XDA-2	3.088	80	11.5	6.17	9.588	13.06	18.52	23.40	28.94	SHEET FLOW EX. DITCH ALONG THE TXDOT ROW AT DISCHARGE POINT #2

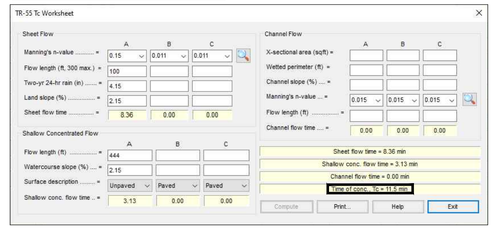
PRE DEVELOPMENT RUNOFF TO STUDY POINTS (cfs)

	2 yr	5yr	10 yr	25 yr	50yr	100 yr
Study Point 1	0.37	0.578	0.79	1.12	1.41	1.74
Study Point 2	6.17	9.588	13.06	18.52	23.40	28.94

XDA-1 TC CALCULATION



XDA-2 TC CALCULATION



Know what's **below.**
Call before you dig.

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4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY



PRE-DRAINAGE PLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

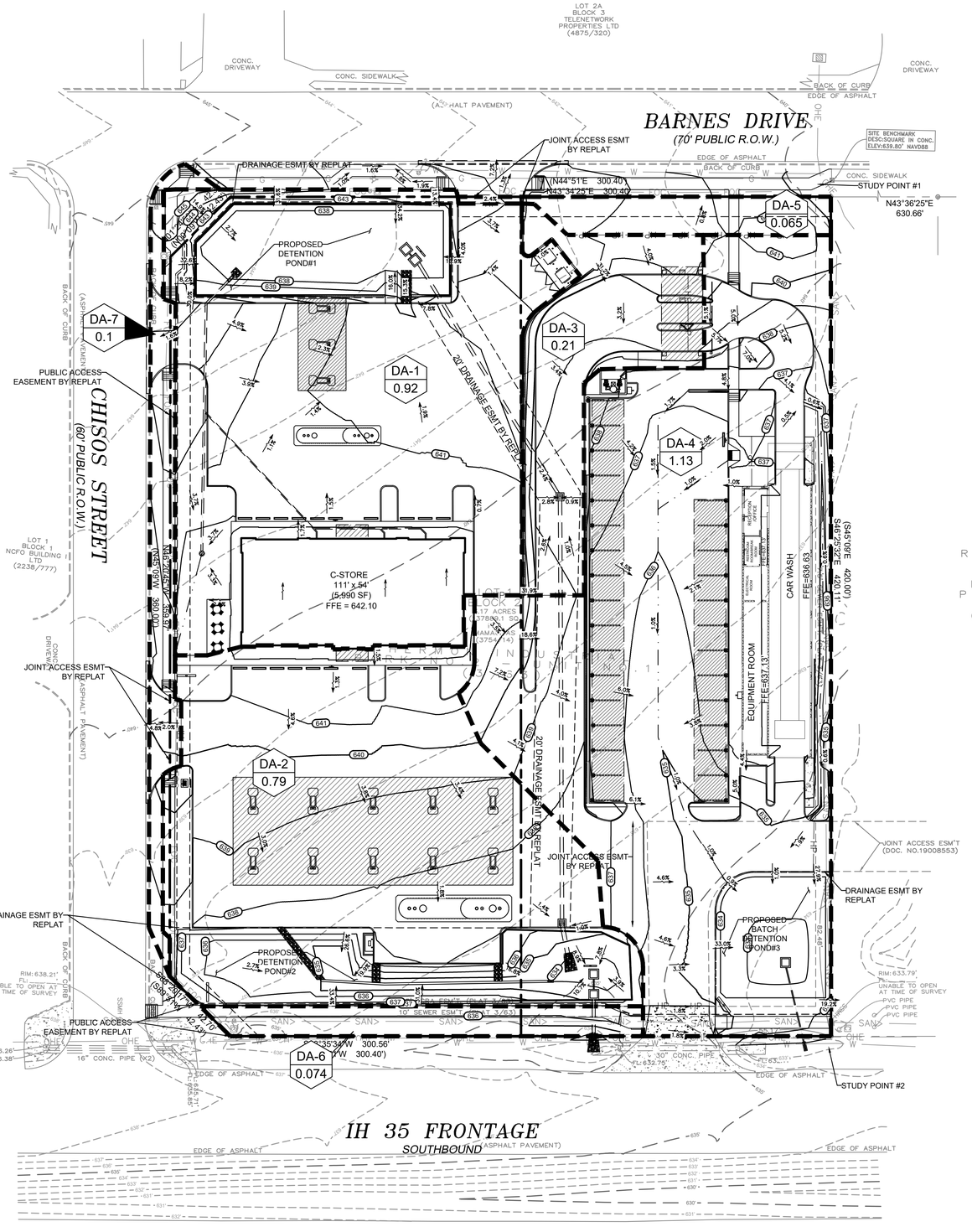
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TX. P.E. FIRM #11525



REPLAT OF LOT 2 THERMON INDUSTRIAL PARK NO.2 - UNIT NO.1 (18010054)

LOT 2-A
BLOCK 2
CTEC SM PROPERTY LLC
(DOC.NO.18010956)

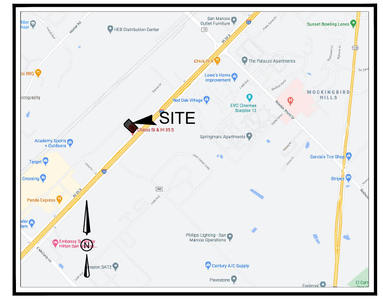
LEGEND

IRON PIPE FOUND	GAS METER
IRON ROD FOUND	TELEPHONE PEDESTAL
IRON ROD SET	CABLE PEDESTAL
"x" IN CONCRETE	SANITARY SEWER MANHOLE
PK FOUND	STORM SEWER MANHOLE
CALCULATED POINT	ELECTRIC GROUND
CONCRETE MONUMENT	CONTROL POINT
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WATER VALVE	SIGN POST
CLEANOUT	ELECTRIC TRANSFORMER
GAS VALVE	TRAFFIC SIGNAL BOX
POWER POLE	P.U.E. PUBLIC UTILITY EASEMENT
DOWN GUY	D.E. DRAINAGE EASEMENT
ELECTRIC METER	B.L. BUILDING LINE
LIGHT POLE	(BRG.--DIST.) RECORD CALL
WOOD FENCE	EXISTING GAS
CHAIN LINK FENCE	EXISTING SANITARY SEWER
WIRE FENCE	EXISTING FIBER OPTIC
METAL FENCE	EXISTING WATER
	OVERHEAD ELECTRIC LINE

POST-DRAINAGE LEGEND

EXISTING MINOR CONTOURS	464
EXISTING MAJOR CONTOURS	465
MINOR CONTOURS	464
MAJOR CONTOURS	465
DRAINAGE DIVIDE	
HIGH POINT	HP HP HP HP
FLOW PATH	
DRAINAGE AREA NO.	DA-X
DRAINAGE AREA ACREAGE	X.XX
DRAINAGE FLOW DIRECTION	1%

0 60
Scale: 1" = 30 ' Feet



VICINITY MAP
N.T.S.

RAINFALL DEPTHS FOR SCS 24 HR PRECIPITATION (inches)					
2 yr	5 yr	10 yr	25 yr	50 yr	100 yr
4.15	5.54	6.92	9.07	11.00	13.20

POST DEVELOPMENT RUNOFF RATE SUMMARY (SCS METHOD)

DRAINAGE BASIN	DA (AC)	CN#	TC (MIN)	2 yr (CFS)	5 yr(CFS)	10 yr (CFS)	25 yr (CFS)	50 yr(CFS)	100 yr (CFS)	REMARKS
DA-1	0.92	**93**								
GRASS	0.26	80	5	3.00	4.12	5.24	6.96	8.49	10.23	SHEET FLOW TO ON SITE DETENTION POND #1, EVENTUALLY FLOW TO EX. DITCH ALONG THE TXDOT ROW AT DISCHARGE POINT #2
PAVED	0.66	98								
DA-2	0.79	**93**								
GRASS	0.22	80	5	2.57	3.54	4.50	5.97	7.29	8.79	SHEET FLOW TO ON SITE DETENTION POND #2,EVENTUALLY FLOW TO EX. DITCH ALONG THE TXDOT ROW AT DISCHARGE POINT #2
PAVED	0.57	98								
DA-3	0.21	**92**								
GRASS	0.07	80	5	0.67	0.93	1.18	1.58	1.93	2.33	COLLECT BY INLET, THEN PIPE DISCHARGE INTO DETENTION POND #2 AND EVENTUALLY FLOW TO EX. DITCH ALONG THE TXDOT ROW AT DISCHARGE POINT #2
PAVED	0.14	98								
DA-4	1.13	**94**								
GRASS	0.24	80	5	3.75	5.13	6.49	8.59	10.47	12.60	SHEET FLOW TO EX. DITCH ALONG THE TXDOT ROW AT SIDCHARGE POINT #2.
PAVED	0.89	98								
DA-5	0.065	**80**								
GRASS	0.065	80	5	0.14	0.22	0.30	0.43	0.54	0.67	SHEET FLOW TO CITY ROW (BARNES DR.) AT DISCHARGE POINT #1
PAVED	0	98								
DA-6	0.074	**80**								
GRASS	0.074	98	5	0.16	0.25	0.35	0.49	0.62	0.76	SHEET FLOW TO EX. DITCH ALONG THE TXDOT ROW AT SIDCHARGE POINT #2.
PAVED	0	80								
DA-7	0.1	**89**								
GRASS	0.052	98	5	0.30	0.42	0.54	0.73	0.90	1.10	SHEET FLOW TO EX. DITCH ALONG THE TXDOT ROW
PAVED	0.048	80								

Runoff Summary

Point of analysis	Contributing Drainage Area	Storm event	Existing flow (cfs)	Proposed With out Detention (cfs)	detention storage (cf)	Proposed Flow with detention (cfs)	Net Change (cfs) (Propose - Exist)
PoA1	DA-5	2yr	0.37	0.14	N/a	N/a	N/a
PoA1		5yr	0.58	0.22	N/a	N/a	N/a
PoA1		10yr	0.79	0.30	N/a	N/a	N/a
PoA1		25yr	1.12	0.43	N/a	N/a	N/a
PoA1		50yr	1.41	0.54	N/a	N/a	N/a
PoA1		100yr	1.74	0.67	N/a	N/a	N/a
PoA2	DA-1, DA-2,DA-3,DA-4. DA-6	2yr	6.17	10.16	10410	5.62	4.54
PoA2		5yr	9.59	13.98	12568	9.45	4.53
PoA2		10yr	13.06	17.76	14209	12.98	4.78
PoA2		25yr	18.52	23.60	16172	17.97	5.63
PoA2		50yr	23.40	28.80	17514	22.88	5.92
PoA2		100yr	28.94	34.71	18771	28.79	5.92

NOTES:

UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS, AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF OCCUPANCY BY THE PERMIT CENTER, THE DESIGN ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DETENTION AND FILTRATION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.

FLOOD PLAIN NOTE

THE SUBJECT PROPERTY LIES WITHIN THE ZONE "X" UNSHADED (DETERMINED TO BE OF THE 0.20% ANNUAL CHANGE FLOODPLAIN) AS DETERMINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP NUMBER 48209C0477F, DATED SEPTEMBER 02, 2005 FOR THE HAYS COUNTY, TEXAS AND INCORPORATED AREAS.

811 Know what's below. Call before you dig.

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5	03/30/2022	Per TIA Comments	AY
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7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS · PIK HAU YEOH · 121532 · LICENSED · PROFESSIONAL ENGINEER
11/03/2022

POST-DRAINAGEPLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

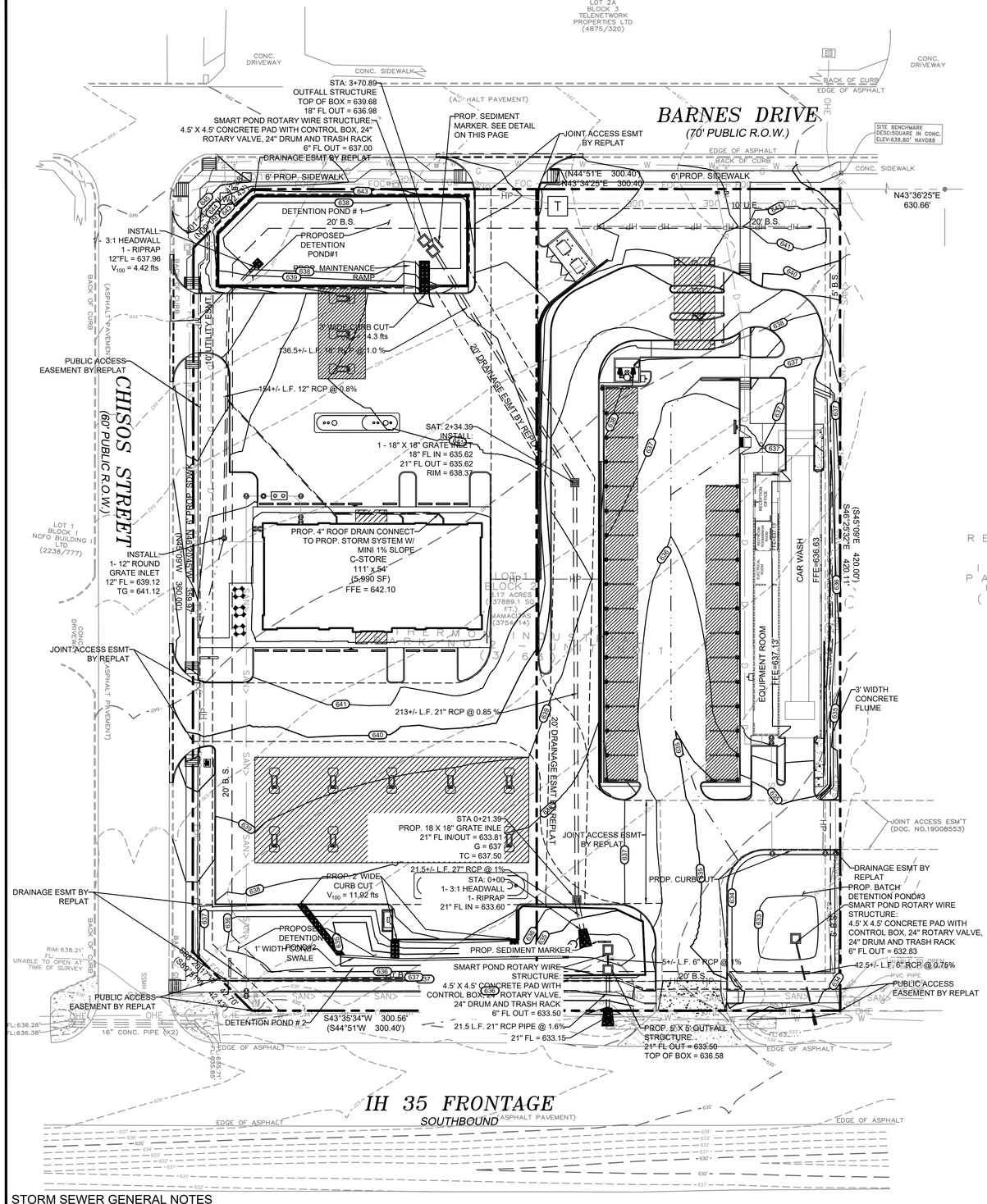
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TX. P.E. FIRM #11525



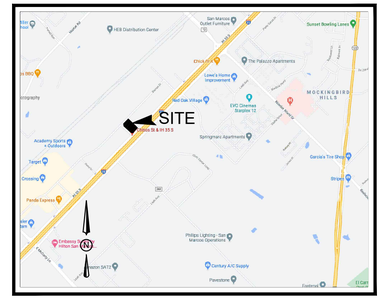
LEGEND

IRON PIPE FOUND		GAS METER	
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CONCRETE MONUMENT		CONTROL POINT	
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WATER VALVE		SIGN POST	
CLEANOUT		ELECTRIC TRANSFORMER	
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DOWN GUY	D.E.	DRAINAGE EASEMENT	
ELECTRIC METER	B.L.	BUILDING LINE	
LIGHT POLE	(BRG.—DIST.)	RECORD CALL	
WOOD FENCE	GAS	EXISTING GAS	
CHAIN LINK FENCE	S	EXISTING SANITARY SEWER	
WIRE FENCE	FO	EXISTING FIBER OPTIC	
METAL FENCE	W	EXISTING WATER	
	E	OVERHEAD ELECTRIC LINE	

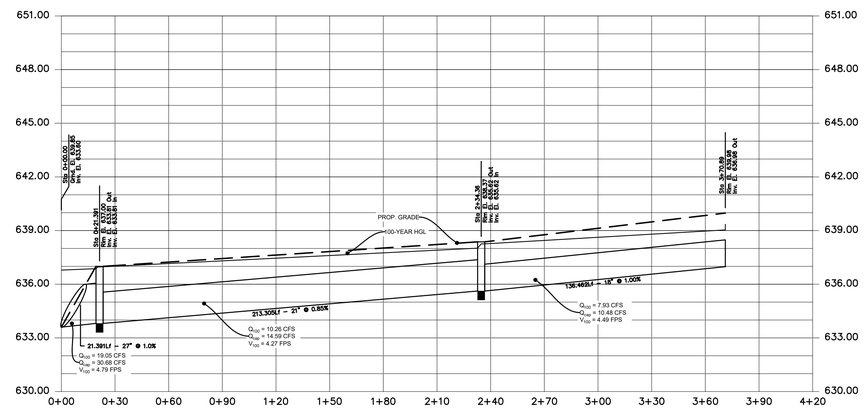
STORM SEWER LEGEND

EXISTING MINOR CONTOURS	464
EXISTING MAJOR CONTOURS	465
MINOR CONTOURS	464
MAJOR CONTOURS	465
STORM PIPE	
HIGH POINT	HP
FLOW PATH	
GRATE INLET	
SANITARY SEWER CLEANOUT	©
SANITARY SEWER DOUBLE CLEANOUT	©©
DOMESTIC WATER METER	W
IRRIGATION METER	

0 60
Scale: 1" = 30 ' Feet



VICINITY MAP
N.T.S.



STORM LINE **A**

SCALE: 1(in) = 30(ft) H, 1(in) = 3(ft) V

STORM SEWER GENERAL NOTES

1. ALL STORM DRAIN CONSTRUCTION, TESTING, AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY'S CURRENT STANDARDS, DETAILS, AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL VERIFY EXISTING LOCATIONS, SIZES AND FLOW LINES FOR ALL STORM SEWER SYSTEMS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS PRIOR TO CONNECTING PROPOSED STORM SEWER PIPES.
3. TWO WEEKS PRIOR TO CONNECTING TO EXISTING STORM DRAIN LINES, THE CONTRACTOR SHOULD INSPECT THE EXISTING LINE AND CONTACT THE STORM WATER INSPECTOR SHOULD THE LINE NEED TO BE CLEANED.
4. CONTRACTOR SHOULD INSPECT ALL STORM DRAIN OUTFALLS NO EARLIER THAN TWO WEEKS PRIOR TO FINAL INSPECTION AND REMOVE ALL SILT AND DEBRIS.

811 Know what's **below.** **Call** before you dig.



SEDIMENT MARKER FOR POND-1



SEDIMENT MARKER FOR POND-2

NO.	DATE	DESCRIPTION	BY
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10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS — PIK HAU YEOH — 121532 — LICENSED PROFESSIONAL ENGINEER — 11/03/2022

STORM SEWER PLAN-1

CAR WASH & GAS STATION

IH 35 & CHISOS

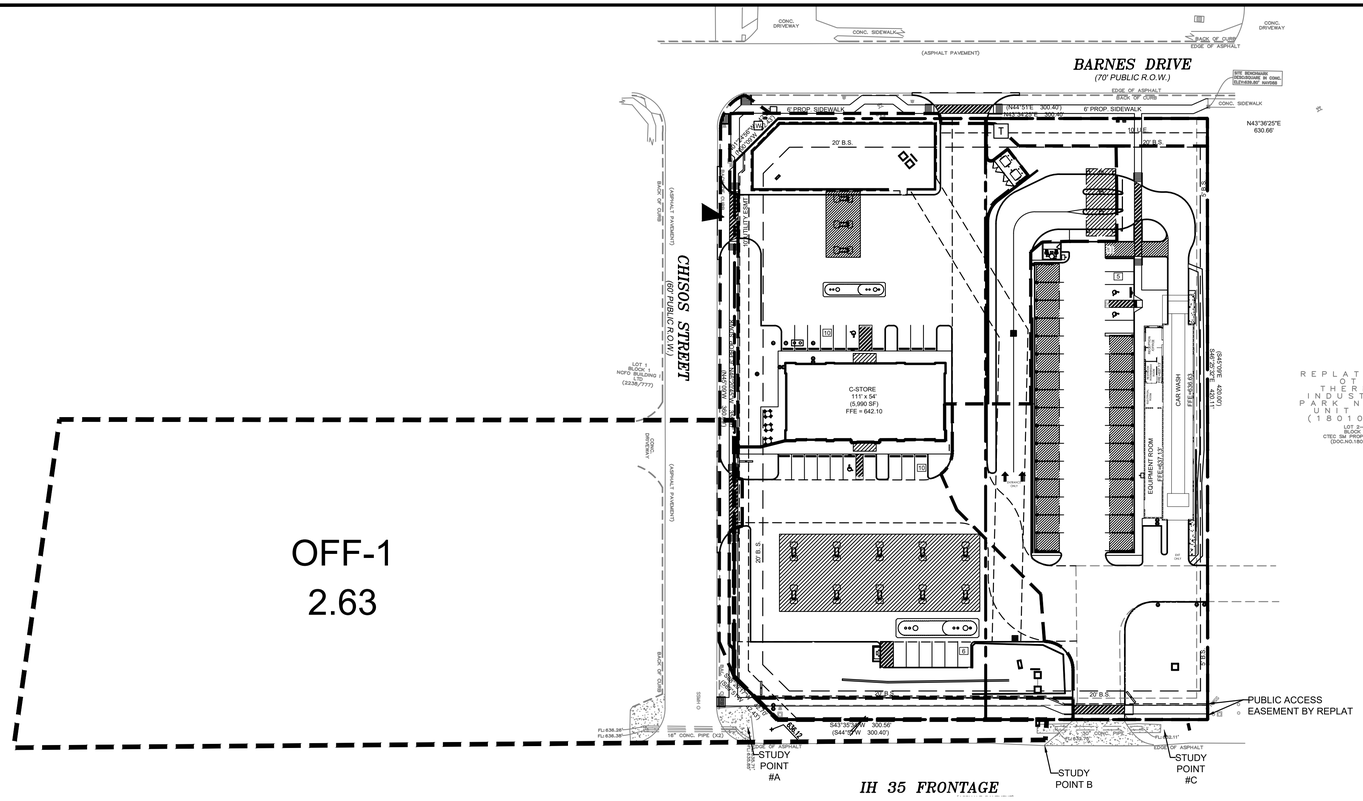
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OVERALL DRINAGE SUMMARY				
STUDY POINT	CONTRIBUTING DRAINAGE AREA	AREA (SQFT)	10-YR RUNOFF(CFS)	DESCRIPTION
A	OFF-1	2.63	17.56	RUNOFF FROM UPSTREM
B	DA-1,2,3,6	1.99	6.71	RUNOFF FROM PROPERTY AND DRIAN TO THE EX. CULVERT
C	DA-4	1.13	6.49	RUNOFF FROM PROPERTY AND DRIAN TO THE EX. DITCH

CULVERT NOTES:

1. THE MAXIMUM ALLOWABLE HEADWATER IS 635.15, WHICH DOESN'T HAVE ANY ADVERSELY IMPACT FOR THE SURROUNDING ROADWAY AND PROPERTY.
   THE OFFSITE DRAINAGE AREA WAS ESTIMATED BASED ON THE OVERALL TOPO , STREET VIEW PICTURE.
   THE C-VALUE IS 0.9 AND RAINFALL INTENSITY IS 7.42 IN/HR FROM 10-YR ATLAS 14 CHART.

DITCH NOTES:

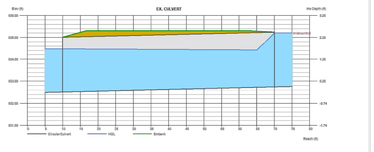
ON STUDY POINT #B: THE 10-YR CAPACITY OF DITCH BEFORE THE CULVERT IS 34.48CFS, THE TOTAL 10-YR RUNOFF DRAIN TO THIS POINT IS 24.27 CFS.
ON STUDY POINT #C: THE 10-YR CAPACITY OF DITCH AFTER THE CULVERT IS 41.15 CFS, THE TOTAL 10-YR RUNOFF DRAIN TO THIS POINT IS 30.76 CFS.

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Friday, Aug 5 2022

EX. CULVERT

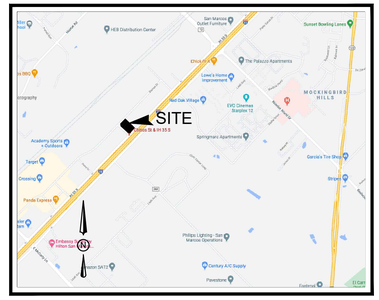
Invert Elev Dn (ft)	= 632.51	**Calculations**	
Pipe Length (ft)	= 60.00	Qmin (cfs)	= 20.27
Slope (%)	= 0.38	Qmax (cfs)	= 25.27
Invert Elev Up (ft)	= 632.74	Tailwater Elev (ft)	= Normal
Rise (in)	= 30.0		
Shape	= Circular	**Highlighted**	
Span (in)	= 30.0	Qtotal (cfs)	= 24.27
No. Barrels	= 1	Qpipe (cfs)	= 24.27
n-Value	= 0.013	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Concrete	Veloc Dn (ft/s)	= 5.88
Culvert Entrance	= Groove end w/headwall (C)	Veloc Up (ft/s)	= 6.94
Coeff. K,M,c,Y,k	= 0.0018, 2, 0.0292, 0.74, 0.2	HGL Dn (ft)	= 634.47
		HGL Up (ft)	= 634.42
Embankment		Hw Elev (ft)	= 635.20
Top Elevation (ft)	= 635.30	Hw/D (ft)	= 0.99
Top Width (ft)	= 47.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 18.00		



LEGEND			
⊙	IRON PIPE FOUND	▣	GAS METER
●	IRON ROD FOUND	☐	TELEPHONE PEDESTAL
○	IRON ROD SET	▣	CABLE PEDESTAL
X	"X" IN CONCRETE	SSMH ○	SANITARY SEWER MANHOLE
▲	PK FOUND	STMH ○	STORM SEWER MANHOLE
⊗	CALCULATED POINT		ELECTRIC GROUND
■	CONCRETE MONUMENT		CONTROL POINT
	FIRE HYDRANT		UNDERGROUND UTILITY MARKER SIGN
WM	WATER METER		UNDERGROUND UTILITY TEST STATION
	WATER VALVE		SIGN POST
CO ○	CLEANOUT		ELECTRIC TRANSFORMER
GV ○	GAS VALVE		TRAFFIC SIGNAL BOX
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E	ELECTRIC METER	B.L.	BUILDING LINE
	LIGHT POLE	(BRG.--DIST.)	RECORD CALL
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EXISTING MAJOR CONTOURS	465
MINOR CONTOURS	464
MAJOR CONTOURS	465
STORM PIPE	
HIGH POINT	HP HP HP HP
FLOW PATH	
GRATE INLET	
SANITARY SEWER CLEANOUT	©
SANITARY SEWER DOUBLE CLEANOUT	ⓒⓒ
DOMESTIC WATER METER	W
IRRIGATION METER	

0 50 100
Scale: 1" = 50 ' Feet



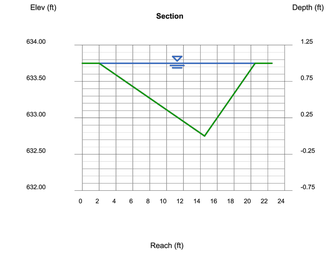
VICINITY MAP
N.T.S.

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Thursday, Jun 9 2022

STUDY POINT #B

Triangular		**Highlighted**	
Side Slopes (z:1)	= 12.50, 6.00	Depth (ft)	= 1.00
Total Depth (ft)	= 1.00	Q (cfs)	= 34.48
		Area (sqft)	= 9.25
Invert Elev (ft)	= 632.75	Velocity (ft/s)	= 3.73
Slope (%)	= 1.00	Wetted Perim (ft)	= 18.62
N-Value	= 0.025	Crit Depth, Yc (ft)	= 0.98
		Top Width (ft)	= 18.50
Calculations		EGL (ft)	= 1.22
Compute by:	Known Depth		
Known Depth (ft)	= 1.00		

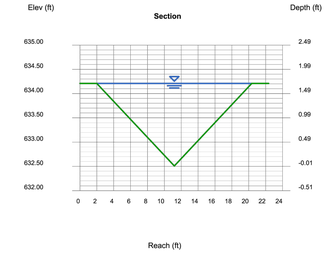


Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Thursday, Jun 9 2022

STUDY POINT #C

Triangular		**Highlighted**	
Side Slopes (z:1)	= 5.40, 5.40	Depth (ft)	= 1.70
Total Depth (ft)	= 1.70	Q (cfs)	= 41.15
		Area (sqft)	= 15.61
Invert Elev (ft)	= 632.51	Velocity (ft/s)	= 2.64
Slope (%)	= 0.25	Wetted Perim (ft)	= 18.67
N-Value	= 0.025	Crit Depth, Yc (ft)	= 1.30
		Top Width (ft)	= 18.36
Calculations		EGL (ft)	= 1.81
Compute by:	Known Depth		
Known Depth (ft)	= 1.70		



STORM SEWER GENERAL NOTES

1. ALL STORM DRAIN CONSTRUCTION, TESTING, AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY'S CURRENT STANDARDS, DETAILS, AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL VERIFY EXISTING LOCATIONS, SIZES AND FLOW LINES FOR ALL STORM SEWER SYSTEMS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS PRIOR TO CONNECTING PROPOSED STORM SEWER PIPES.
3. TWO WEEKS PRIOR TO CONNECTING TO EXISTING STORM DRAIN LINES, THE CONTRACTOR SHOULD INSPECT THE EXISTING LINE AND CONTACT THE STORM WATER INSPECTOR SHOULD THE LINE NEED TO BE CLEANED.
4. CONTRACTOR SHOULD INSPECT ALL STORM DRAIN OUTFALLS NO EARLIER THAN TWO WEEKS PRIOR TO FINAL INSPECTION AND REMOVE ALL SILT AND DEBRIS.

811 Know what's below. Call before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

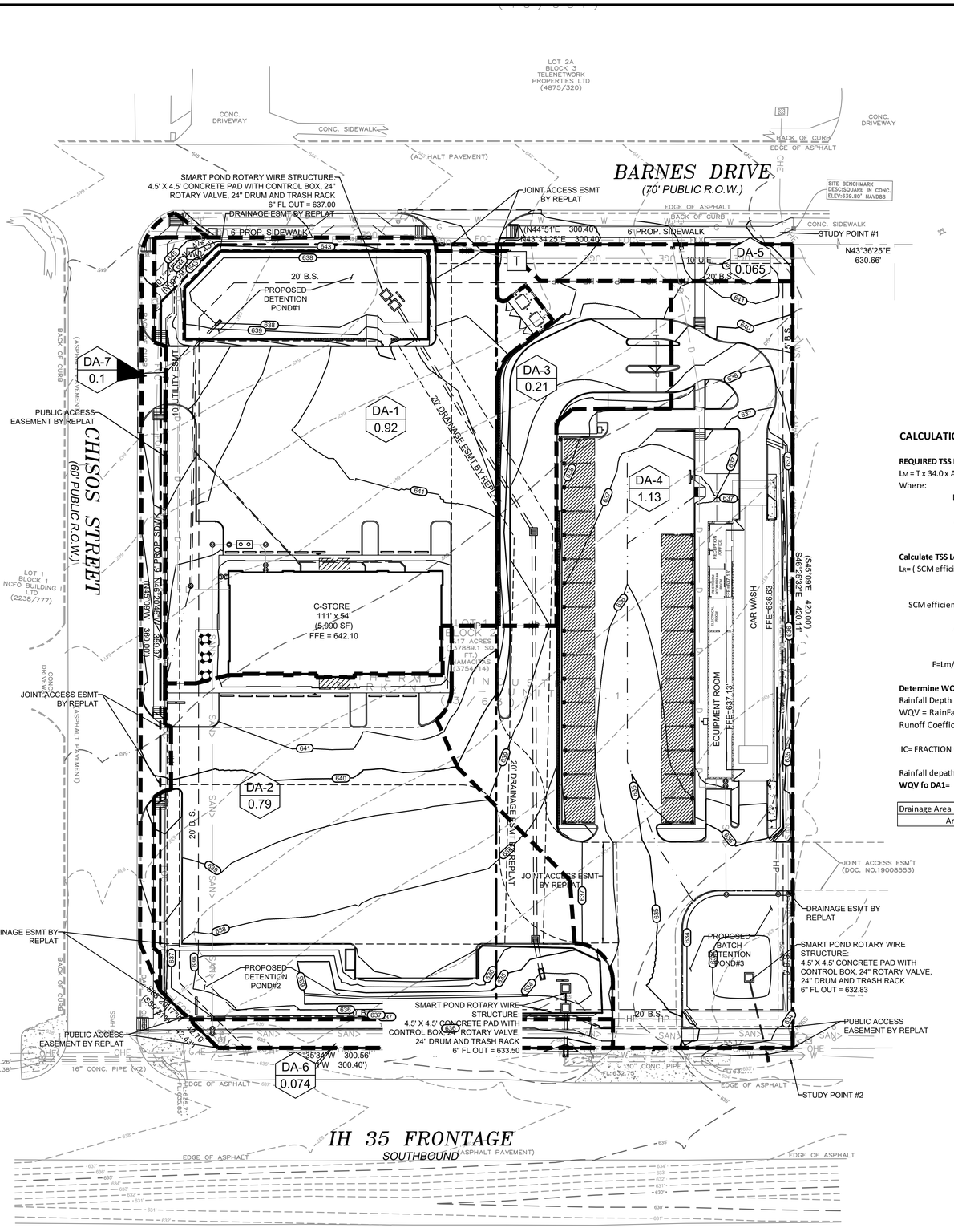
STATE OF TEXAS — PIK HAU YEOH — 121532 — LICENSED PROFESSIONAL ENGINEER
11/03/2022

STORM SEWER PLAN-2

CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management
TX. P.E. FIRM #11525

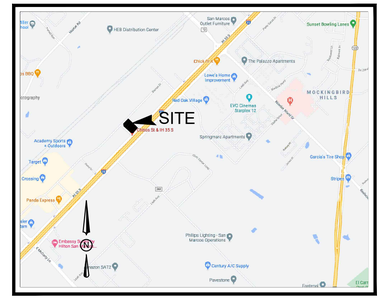
P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-6.2



LEGEND

IRON PIPE FOUND		GAS METER	
IRON ROD FOUND		TELEPHONE PEDESTAL	
IRON ROD SET		CABLE PEDESTAL	
"X" IN CONCRETE	SSMH	SANITARY SEWER MANHOLE	
PK FOUND	STMH	STORM SEWER MANHOLE	
CALCULATED POINT		ELECTRIC GROUND	
CONCRETE MONUMENT		CONTROL POINT	
FIRE HYDRANT		UNDERGROUND UTILITY MARKER SIGN	
WATER METER		UNDERGROUND UTILITY TEST STATION	
WATER VALVE		SIGN POST	
CLEANOUT		ELECTRIC TRANSFORMER	
GAS VALVE		TRAFFIC SIGNAL BOX	
POWER POLE	P.U.E.	PUBLIC UTILITY EASEMENT	
DOWN GUY	D.E.	DRAINAGE EASEMENT	
ELECTRIC METER	B.L.	BUILDING LINE	
LIGHT POLE	(BRG.—DIST.)	RECORD CALL	
WOOD FENCE	GAS	EXISTING GAS	
CHAIN LINK FENCE	S	EXISTING SANITARY SEWER	
WIRE FENCE	FO	EXISTING FIBER OPTIC	
METAL FENCE	W	EXISTING WATER	
	E	OVERHEAD ELECTRIC LINE	

Scale: 1" = 30' Feet



VICINITY MAP
N.T.S.

STORM SEWER LEGEND

EXISTING MINOR CONTOURS	464
EXISTING MAJOR CONTOURS	465
MINOR CONTOURS	464
MAJOR CONTOURS	465
STORM PIPE	
HIGH POINT	HP HP HP HP
FLOW PATH	
GRATE INLET	
SANITARY SEWER CLEANOUT	©
SANITARY SEWER DOUBLE CLEANOUT	©©
DOMESTIC WATER METER	W
IRRIGATION METER	

CALCULATION OF WATER QUALITY VOLUME - Batch detention#1

REQUIRED TSS REMOVAL

$L_M = T \times 34.0 \times A_T \times P$

Where:

L_M =	592	Required TSS Removal (Pounds of TSS)
T=	0.8	Water Quality Treatment Level (decimal fraction)
A_T=	0.66	Impervious Cover to be Treated (acres)
P=	33	Average Annual Precipitation

Calculate TSS Load Removed by SCMs

$L_R = (\text{SCM efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

L_R = 685.91	Load removed by SCM (pound)
SCM efficiency= 0.91	TSS removal efficiency (decimal)
A_I= 0.66	Impervious tributary area to the SCM (acres)
A_P= 0.26	Pervious tributary area to the SCM (acres)
P= 33	Average Annual Precipitation

F=Lm/LR= 0.86

Determine WQV to Meet the TSS Requirement

Rainfall Depth requireed to be captured = 1.38

WQV = RainFall Depth x Runoff Coefficient x Area

Runoff Coefficient = 1.72(IC)^3 - 1.97(IC)^2 + 1.23 (IC) + 0.02

= 0.52

IC= FRACTION OF IMPERVIOUS COVER

= 0.72

Rainfall depath = 1.38 inch

WQV fo DA1= = 2412.92 cubic feet

Drainage Area	Total	Previous	Imprevious
Area=	0.92	0.26	0.66

Pond 1 Storage Table

Elevation	Area	Incremental Storage	Total Storage	
637	0	0	0	
638	3885	1295	1295	
638.3	4212	1214	2509	WQV
639	5025	3229	5738	
640	5512	5266	11004	

CALCULATION OF WATER QUALITY VOLUME - Batch detention#2

REQUIRED TSS REMOVAL

$L_M = T \times 34.0 \times A_T \times P$

Where:

L_M =	637	Required TSS Removal (Pounds of TSS)
T=	0.8	Water Quality Treatment Level (decimal fraction)
A_T=	0.71	Impervious Cover to be Treated (acres)
P=	33	Average Annual Precipitation

Calculate TSS Load Removed by SCMs

$L_R = (\text{SCM efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

L_R = 737.87	Load removed by SCM (pound)
SCM efficiency= 0.91	TSS removal efficiency (decimal)
A_I= 0.71	Impervious tributary area to the SCM (acres)
A_P= 0.29	Pervious tributary area to the SCM (acres)
P= 33	Average Annual Precipitation

F=Lm/LR= 0.86

Determine WQV to Meet the TSS Requirement

Rainfall Depth requireed to be captured = 1.38

WQV = RainFall Depth x Runoff Coefficient x Area

Runoff Coefficient = 1.72(IC)^3 - 1.97(IC)^2 + 1.23 (IC) + 0.02

= 0.52

IC= FRACTION OF IMPERVIOUS COVER

= 0.71

Rainfall depath = 1.38 inch

WQV fo DA2&3= = 2041.36 cubic feet

Drainage Area	Total	Previous	Imprevious
DA2	0.79	0.22	0.57
DA3	0.21	0.07	0.14

Pond 2 Storage Table

Elevation	Area	Incremental Storage	Total Storage	
633.5	0	0	0	
634	250	41.6	41.6	
635	2153	1045	1087	
635.4	3194	1063	2150	WQV
636	4756	3370	4457	
637	6626	5665	10122	

CALCULATION OF WATER QUALITY VOLUME - Batch detention#3

REQUIRED TSS REMOVAL

$L_M = T \times 34.0 \times A_T \times P$

Where:

L_M =	799	Required TSS Removal (Pounds of TSS)
T=	0.8	Water Quality Treatment Level (decimal fraction)
A_T=	0.89	Impervious Cover to be Treated (acres)
P=	33	Average Annual Precipitation

Calculate TSS Load Removed by SCMs

$L_R = (\text{SCM efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

L_R = 924.87	Load removed by SCM (pound)
SCM efficiency= 0.91	TSS removal efficiency (decimal)
A_I= 0.89	Impervious tributary area to the SCM (acres)
A_P= 0.24	Pervious tributary area to the SCM (acres)
P= 33	Average Annual Precipitation

F=Lm/LR= 0.86

Determine WQV to Meet the TSS Requirement

Rainfall Depth requireed to be captured = 1.38

WQV = RainFall Depth x Runoff Coefficient x Area

Runoff Coefficient = 1.72(IC)^3 - 1.97(IC)^2 + 1.23 (IC) + 0.02

= 0.61

IC= FRACTION OF IMPERVIOUS COVER

= 0.79

Rainfall depath = 1.38 inch

WQV fo DA4= = 3436.37 cubic feet

Drainage Area	Total	Previous	Imprevious
DA4	1.13	0.24	0.89

Pond 3 Storage Table

Elevation	Area	Incremental Storage	Total Storage	
632.83	25	0	0	
633	832	56.7	56.7	
633.18	2586	293	350	
634	3118	2335	2685	
634.24	3283	768	3453	WQV

TOTAL LM = 2081 lbs

TOTAL TSS REMOVED BY BATCH DETENTION POND = 2348.65 lbs

Note:
1) The site is located at San Marcos River Protection Zone
2) Require Wqv design rainfall depth = 1.25"
3) Required Wqv Treatment Level = 80%

Know what's below. Call before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS — PIK HAU YEOH — 121532 — LICENSED PROFESSIONAL ENGINEER — 11/03/2022

WATER QUALITY PLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

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Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10–26–20	SEE SCALE BAR	103–20	C-6.2

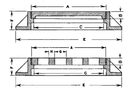
TX. P.E. FIRM #11525

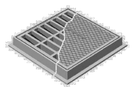
■ Note: When specifying/ordering grates, refer to "Choosing the Proper Inlet Grate" on pages 125-126.
For a complete listing of FREE OPEN AREAS and WEIR PERIMETERS of all NEENAH grates, refer to pages 327-332.

R-1878 Series
Frame, Solid Lid/Grate

Heavy Duty

CATALOG NUMBER	GRATE TYPE	SQ. FT. OPEN	WEIR PERIMETER LINEAL FEET
R-1878-A1S	A or C	3.5	4.8
R-1878-A2S	A or C	5.8	6.4
R-1878-A3S	A or C	1.8	8.7
R-1878-A4S	A or C	2.2	6.4
R-1878-A5S	A or C	1.8	7.9
R-1878-A6S	A or C	3.7	8.9
R-1878-A7S	A or C	3.1	8.2
R-1878-A8S	A or C	2.0	8.8
R-1878-A9S	A or C	3.5	10.9
R-1878-A10S	A or C	3.8	12.3
R-1878-B1S	A	0.9	5.7
R-1878-B2S	A	0.9	6.5
R-1878-B3S	A	1.2	7.5
R-1878-B4S	A	2.1	8.5
R-1878-B5S	A	2.4	9.5
R-1878-B6S	A	2.6	9.5
R-1878-B7S	A	2.8	10.5
R-1878-B8S	A	3.7	12.4
R-1878-B9S	C	3.0	11.6
R-1878-B10S	C	4.8	15.3
R-1878-B11S	A	5.8	14.7





These shallow frames are suitable for use in thin or deep concrete slabs. All sizes of frames are reversible and can be installed with flange at base or top.
For additional selections, see **R-6672-3 Series.**

Dimensions in inches

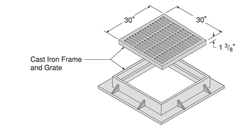
Catalog No. Solid Lid	Catalog No. Open Grate	A	B	C	E	F	G	H
Square								
R-1878-A1L	R-1878-A1G ***	13 3/4 x 13 3/4	1 1/2	12 x 12	18 x 18	4	1 x 5 1/2	1
R-1878-A2L	R-1878-A2G	18 x 18	1 1/2	16 x 16	22 x 22	4	1 1/4 x 4 1/4	1
R-1878-A3L	R-1878-A3G	20 x 20	1 1/2	18 x 18	24 x 24	4	1 15/16 x 3 3/8	1
R-1878-A4L	R-1878-A4G	21 1/2 x 21 1/2	1 1/2	20 x 20	26 x 26	4	1 3/8 x 3 5/8	1
R-1878-A5L	R-1878-A5G	23 1/2 x 23 1/2	1 1/2	22 x 22	28 x 28	4	1 1/2 x 6 3/8	1
R-1878-A6L	R-1878-A6G **	25 3/4 x 25 3/4	1 1/2	24 x 24	30 x 30	4	2 3/8 x 7 1/4	3/4
R-1878-A7L	R-1878-A7G	27 1/2 x 27 1/2	1 1/2	26 x 26	32 x 32	4	1 x 5	1
R-1878-A8L	R-1878-A8G	29 1/2 x 29 1/2	1 1/2	28 x 28	34 x 34	4	1 1/8 x 5 1/2	1
R-1878-A9L	R-1878-A9G **	31 3/4 x 31 3/4	1 1/2	30 x 30	36 x 36	4	1 x 9 3/8	1 1/8
R-1878-A10L *	R-1878-A10G *	38 x 38	1 1/2	36 x 36	42 x 42	4	1 3/4 x 3 1/2	1 1/2
Rectangular								
R-1878-B1L	R-1878-B1G	14 x 29	1 1/2	12 x 18	18 x 24	4	3/4 x 5 1/2	1
R-1878-B2L	R-1878-B2G	13 1/2 x 25 1/2	1 1/2	12 x 24	18 x 30	4	1 x 4 1/2	1
R-1878-B2AL		18 1/4 x 26 1/4	1 1/2	16 x 24	24 x 32	4		
R-1878-B3L	R-1878-B3G	19 1/2 x 25 1/2	1 1/2	18 x 24	24 x 30	4	7/8 x 5	1
R-1878-B4L	R-1878-B4G	19 1/2 x 31 1/2	1 1/2	18 x 30	24 x 36	4	2 x 5	1
R-1878-B5L	R-1878-B5G	19 3/4 x 37 3/4	1 1/2	18 x 36	24 x 42	4	2 x 5	1
R-1878-B6L	R-1878-B6G	25 1/2 x 31 1/2	1 1/2	24 x 30	30 x 36	4	1 3/8 x 5	1
R-1878-B7L	R-1878-B7G	25 1/2 x 37 1/2	1 1/2	24 x 36	30 x 42	4	1 1/8 x 7 1/8	3/4
R-1878-B8L *	R-1878-B8G *	25 3/4 x 49 3/4	1 1/2	24 x 48	30 x 54	4	1 9/16 x 6 13/16	1
R-1878-B9L *	R-1878-B9G *	31 3/4 x 37 3/4	1 1/2	30 x 36	36 x 42	4	1 3/8 x 4 5/8	1
R-1878-B10L *	R-1878-B10G *	31 1/2 x 49 1/2	1 1/2	30 x 48	36 x 54	4	1 1/2 x 4 3/4	1
R-1878-B11L *	R-1878-B11G *	38 x 50	1 1/2	36 x 48	44 1/2 x 56 1/2	4	1 1/16 x 7 5/8	1

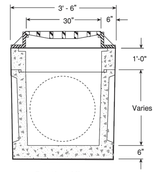
* Gover/Grate in 2 pieces.
** Type Q Grate available, 1/2" wide grate slots.
*** Type Q Grate available, 3/8" wide grate slots.


Type Q Grate

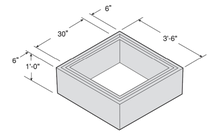
CLICK HERE to return to the Table of Contents

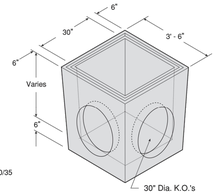
Precast Drainage Structures





Section View





30" Dia. K.O.'s

-No Scale-
All dimensions subject to allowable specification tolerances.

Materials & Features

MAXIMUM PIPE SIZE: 24" I.D. R.C.P.

CONCRETE: 5,000 PSI

REINFORCING: per ASTM A-615 or A-185

CAST IRON FRAME & GRATE per ASTM A 48; Class 30/35

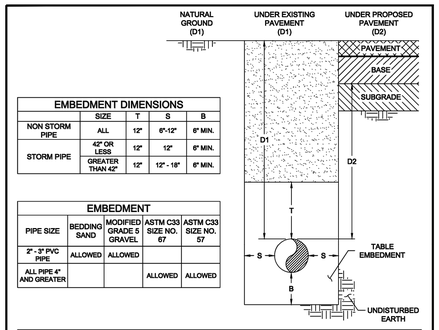
GRATE WEIGHT: 275 Lbs.

CATCH BASIN WEIGHT: 3,900 Lbs.

CATCH BASIN RISER WEIGHT: 900 Lbs.

TITLE	PLANT	STATE	SECTION/PAGE	DATE
30" x 30" Catch Basin w/ Type "A" Grated Inlet	Houston	TX	8.8	01-25-10

Hanson PIPE & PRECAST HEIDELBERGCEMENT Group



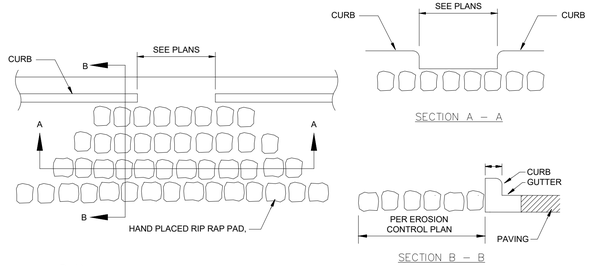
EMBEDMENT DIMENSIONS				
	SIZE	T	S	B
NON STORM PIPE	ALL	12"	6"-12"	6" MIN.
STORM PIPE	42" OR LESS	12"	12"	6" MIN.
	GREATER THAN 42"	12"	12" - 18"	6" MIN.

EMBEDMENT				
PIPE SIZE	BEDDING SAND	MODIFIED GRADE 5 GRAVEL	ASTM C33 SIZE NO. 67	ASTM C33 SIZE NO. 57
2" - 3" PVC PIPE	ALLOWED	ALLOWED		
ALL PIPE 4" AND GREATER			ALLOWED	ALLOWED

MINIMUM DEPTH OF COVER					
PIPE TYPE	SIZE	(D1) UNDER PAVEMENT	(D1) NATURAL GROUND	(D1) LESS THAN 3' OF COVER	(D2 - NOTE 2) UNDER PROPOSED ROAD
WATER	12" OR LESS	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL	36" BELOW BASE
	16" OR GREATER	48" MIN.	48" MIN.	NOT ALLOWED	48" BELOW BASE
WASTEWATER	ALL	60" MIN.	36" MIN.	DUCTILE IRON WILL BE USED. FLOWABLE FILL DETAIL WHERE EROSION MAY OCCUR	48" MIN. BELOW BASE
RECLAIMED WATER	ALL	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL	36" MIN. BELOW BASE
STORM	ALL	MANUFACTURER'S SPECIFICATION MINIMUM AND MAXIMUM DEPTH OF COVER WILL BE USED FOR STORM PIPES			

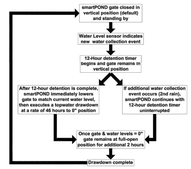
NOTES:
1. ALL MEASUREMENTS ARE FROM OUTSIDE PIPE DIAMETER.
2. FOR TABLE "MINIMUM DEPTH OF COVER" COLUMN "UNDER PROPOSED ROAD" IF D1 FROM COLUMN "UNDER PAVEMENT" PLACES THE PIPE LOWER THAN D2. THEN D1 FROM "UNDER PAVEMENT" WILL BE USED FOR MINIMUM DEPTH OF COVER.
3. REFERENCE APPROPRIATE 510 PIPE TRENCH DETAILS FOR PAYMENT LIMITS. THIS DETAIL IS FOR DIMENSIONAL PURPOSES ONLY.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	UTILITY TRENCH DIMENSIONS
RECORD COPY SIGNED BY	1/23/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
LAURIE MOYER, P.E.	ADOPTED	STANDARD NO. 510S-TD-SM 1 OF 1

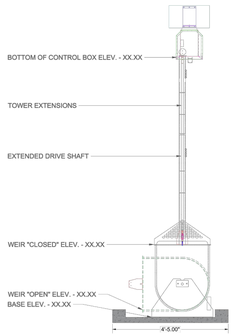


CURB CUT WITH RIP RAP

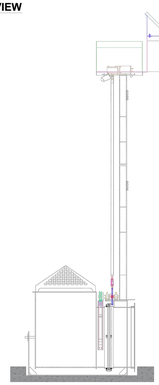
PROGRAMMABLE LOGIC FLOW CHART



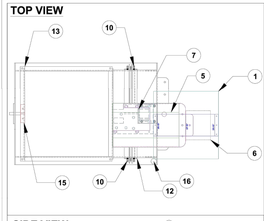
FRONT VIEW



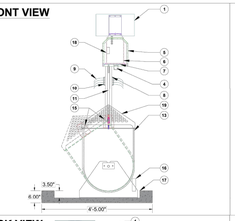
SIDE VIEW



TOP VIEW

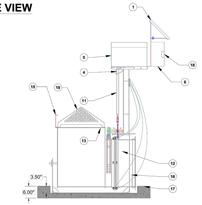


FRONT VIEW

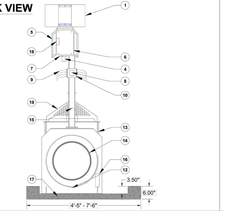


Parts List	
Item	smartPOND Components
1	12 V SOLAR PANEL WITH 30 WATT CHARGING CAPACITY
2	ANTENNA (NOT DISPLAYED)
3	CELL DATA MODEM (NOT DISPLAYED)
4	CAMERA
5	LOCKABLE WEATHERPROOF ELECTRONIC BOX
6	CONTROL BOX W/ LOCKING LATCHES
7	PEDESTAL
8	REMOTE GREASE MANIFOLD
9	GREASE TUBES
10	GREASE FITTINGS
11	EXTENDED DRIVE SHAFT
12	24" Rotary Valve
13	24" Drum (30"-70" TALL)
14	Outlet Pipe (Size TBD By Engineer, Max 24")
15	Inclinometer
16	Level Transducer
17	6" Concrete Pad (By Others, Size Varies)
18	ON/OFF SWITCH
19	TRASH RACK

SIDE VIEW



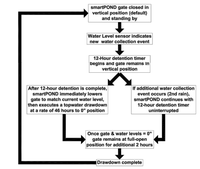
BACK VIEW



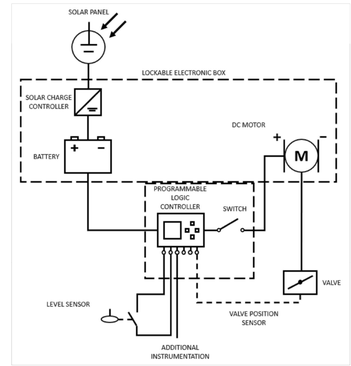
NOTES:
FOR ABOVE GROUND APPLICATIONS, THE ENTIRE SYSTEM INCLUDING ALL NECESSARY COMPONENTS FOR OPERATION ASSEMBLE INTO ONE KIT AND ARE HOUSED UNDER A SINGLE LOCKABLE STEEL ENCLOSURE WITH THE SOLAR PANEL MOUNTED ON TOP. IN THIS CONFIGURATION, THE UNIT CAN BE INSTALLED ON A STABLE, LEVEL PAD AND BE BOLTED ONTO THE BACK OF THE OUTFALL PIPE WITH SIX ¾" BOLTS AND THEN SWITCHED TO THE "ON" POSITION.

FOR UNDERGROUND APPLICATIONS, THE VALVE IS INSTALLED IN A VAULT OR CONCRETE ENCASEMENT AS NEEDED. AN EXTENDED DRIVE SHAFT CONNECTS BETWEEN THE UNDERGROUND VALVE AND THE REST OF THE COMPONENTS, INCLUDING THE MOTOR AND ALL ELECTRONICS, WHICH ARE HOUSED IN THE LOCKABLE STEEL ENCLOSURE DIRECTLY ABOVE GROUND.

PROGRAMMABLE LOGIC FLOW CHART



BLOCK DIAGRAM



NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY

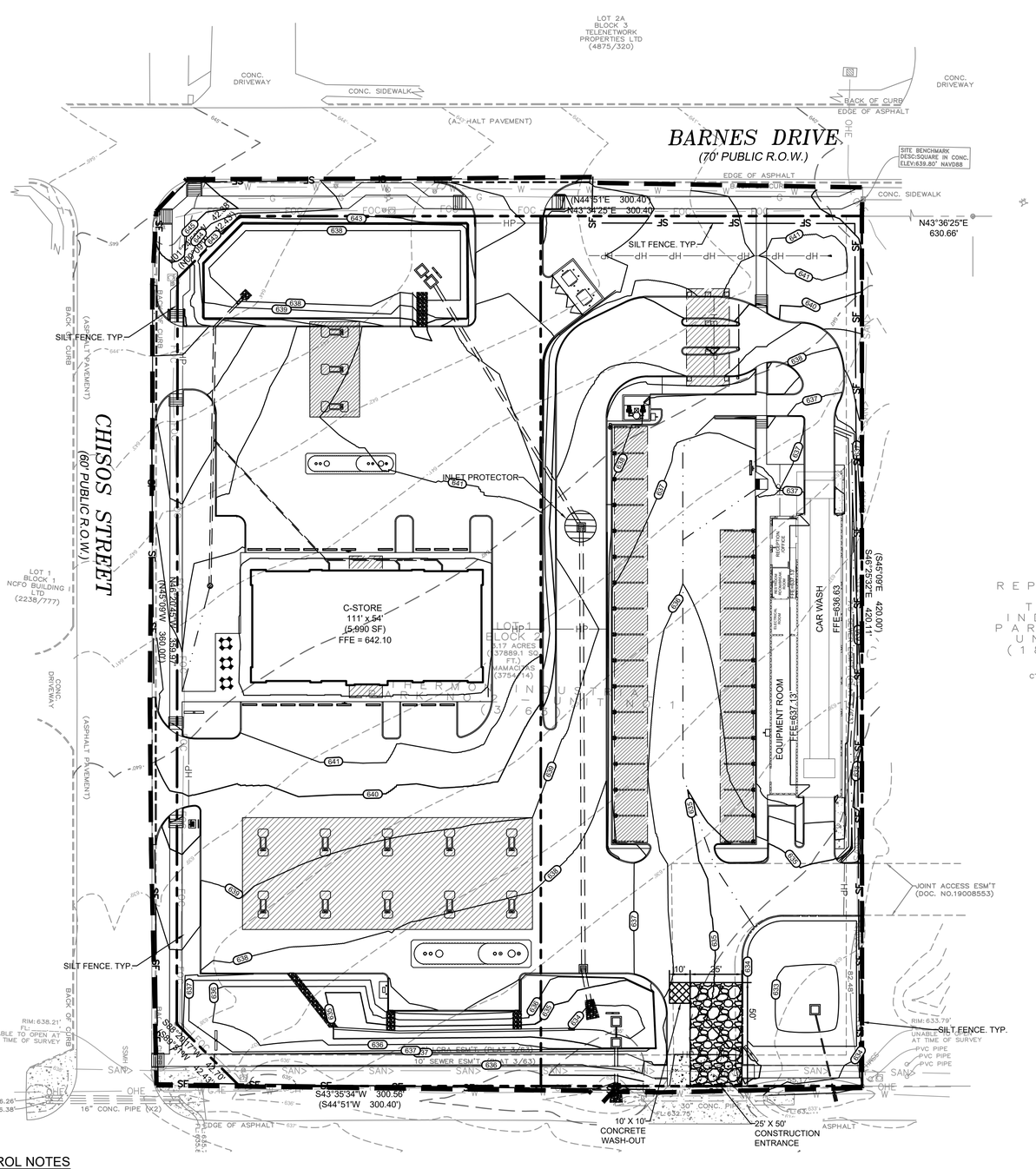
STATE OF TEXAS · PIK HAU YEOH · 121532 · LICENSED PROFESSIONAL ENGINEER
11/03/2022

STORM SEWER DETAILS
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103–20	C-6.4

TX. P.E. FIRM #11525

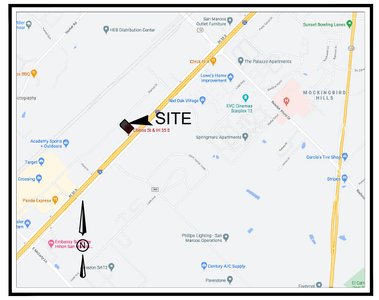


0 60

Scale: 1" = 30 ' Feet

LEGEND

IRON PIPE FOUND	GAS METER
IRON ROD FOUND	TELEPHONE PEDESTAL
IRON ROD SET	CABLE PEDESTAL
"X" IN CONCRETE	SSMH SANITARY SEWER MANHOLE
PK FOUND	STMH STORM SEWER MANHOLE
CALCULATED POINT	ELECTRIC GROUND
CONCRETE MONUMENT	CONTROL POINT
FIRE HYDRANT	UNDERGROUND UTILITY MARKER SIGN
WATER METER	UNDERGROUND UTILITY TEST STATION
WATER VALVE	SIGN POST
CLEANOUT	ELECTRIC TRANSFORMER
GAS VALVE	TRAFFIC SIGNAL BOX
POWER POLE	P.U.E. PUBLIC UTILITY EASEMENT
DOWN GUY	D.E. DRAINAGE EASEMENT
ELECTRIC METER	B.L. BUILDING LINE
LIGHT POLE	(BRG.--DIST.) RECORD CALL
WOOD FENCE	GAS EXISTING GAS
CHAIN LINK FENCE	S EXISTING SANITARY SEWER
WIRE FENCE	FOO EXISTING FIBER OPTIC
METAL FENCE	W EXISTING WATER
	E OVERHEAD ELECTRIC LINE



VICINITY MAP

N.T.S.

EROSION CONTROL LEGEND

TEMPORARY CONSTRUCTION ENTRANCE	
TEMPORARY CONCRETE WASHOUT AREA	
RIP RAP	
TEMPORARY SILT FENCE	SF SF
HIGH POINT	HP HP HP HP
LIMITS OF DISTURBANCE	
TEMPORARY INLET PROTECTION	

EROSION & SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:
SELECT T = TEMPORARY OR P = PERMANENT
(AS APPLICABLE)

___ MULCHING (HAY OR STRAW)
___ BUFFER ZONES
P PLANTING
T SEEDING
P SODDING
___ PRESERVATION OF NATURAL RESOURCES
___ FLEXIBLE CHANNEL LINER
___ RIGID CHANNEL LINER
___ SOIL RETENTION BLANKET
___ COMPOST MANUFACTURED TOPSOIL
___ EROSION CONTROL BLANKET

EROSION CONTROL SUMMARY

PROJECT DESCRIPTION:	SITE GRADING, CONSTRUCTION OF PARKING LOT, UNDERGROUND AND ABOVE GROUND UTILITIES & CONSTRUCTION OF PROPOSED BUILDING.
SEQUENCE OF ACTIVITIES:	THE CONTRACTOR WILL SCHEDULE THE PROJECT IN A SERIES OF PHASES. IN GENERAL, THE SEQUENCE OF THESE PHASES WILL CONSIST OF: 1. INSTALL EROSION CONTROL BMP'S. 2. BEGIN EARTHWORK. 3. INSTALL WET AND DRY UTILITIES. 4. INSTALL STORM SEWER LINES AND INLETS. 5. BEGIN SITE GRADING. 6. INSTALL CURBS, DRIVEWAY AND PARKING LOT. 7. POUR BUILDING FOUNDATION PAD. 8. BEGIN VERTICAL BUILDING CONSTRUCTION. 9. INSTALL TREES, SHRUBS, ETC. AND RESTORE ALL DISTURBED VEGETATION. 10. REMOVAL OF EXISTING EROSION CONTROL BMP'S & INSTALLATION OF PERMANENT EROSION CONTROL BMP'S.
SOIL DISTURBING ACTIVITIES:	SOIL DISTURBING ACTIVITIES WILL INCLUDE CLEARING & GRUBBING, GRADING, TRENCHING IN PREPARATION FOR INSTALLING UTILITIES, BUILDING PAD, PARKING LOT, EROSION & SEDIMENTATION CONTROLS AND TOPSOIL WORK FOR FINAL PLANTING AND SEEDING.
TOTAL PROJECT AREA:	3.17 ACRES
TOTAL DISTURBED AREA:	3.45 ACRES

EROSION CONTROL GENERAL NOTES

1. EVERY SOIL DISTURBING ACTIVITY SHALL HAVE AN ACCOMPANYING EROSION CONTROL PLAN .
2. THE STORM WATER POLLUTION PREVENTION PLAN (SWP3) SHALL BE READILY AVAILABLE FOR REVIEW BY FEDERAL, STATE, OR LOCAL OFFICIALS.
3. NO SOIL DISTURBING ACTIVITIES WILL OCCUR PRIOR TO THE SWP3 AND ASSOCIATED BEST MANAGEMENT PRACTICES (BMP) BEING FULLY IMPLEMENTED AND THEN INSPECTED.
4. THE CONTRACTOR SHALL COMPLY WITH THE CITY'S STORM WATER ORDINANCE. THE TPDES GENERAL CONSTRUCTION PERMIT TXR150000 AND ANY OTHER STATE AND/OR LOCAL REGULATIONS.
5. THE SITE SHALL BE INSPECTED BY THE CONTRACTOR OR HIS REPRESENTATIVE WEEKLY, AND AFTER ANY MAJOR STORM. ADJUSTMENTS/REPAIRS TO THE EROSION CONTROL MEASURES SHOULD BE MADE AS NEEDED.
6. CONTRACTOR SHALL VEGETATE ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF GRADING ACTIVITIES. FINAL ACCEPTANCE OF A SITE SHALL BE CONTINGENT UPON VEGETATION BEING ESTABLISHED IN ALL DISTURBED AREAS.
7. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT SIGNIFICANT EROSION OCCURS AS A RESULT OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE ERODED AREA TO ORIGINAL CONDITION OR BETTER.
8. TEMPORARY STONE STABILIZED CONSTRUCTION ENTRANCE SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS: 24' WIDE X 50' LONG X 6" DEEP. (3"-5" COURSE AGGREGATE). PLACE FILTER FABRIC UNDER STONE .
9. THE CONCRETE WASHOUT AREA IS TO BE USED AS A VEHICLE WASH DOWN AREA FOR DEBRIS AND SOIL REMOVAL PRIOR TO EXITING THE SITE.

CITY EROSION CONTROL NOTES

1. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MUST BE DEVELOPED/AMENDED AND STAMPED BY A TX PE, CPESC, OR QPSWPPP [CITY CODE SECTION 86.529(B)(2) OR 86.529(C)(3)], AVAILABLE (HARD-COPY, INCLUDING A FULL-SIZE SITE MAP) AT THE PRE-CON MEETING,
2. BEFORE ANY DIRT WORK STARTS, ALL EROSION AND SEDIMENTATION CONTROLS (ESCS), AND TREE PROTECTION IF APPLICABLE, MUST BE INSTALLED PER COSM STANDARD DETAILS AND THIS CITY-APROVED PLAN AND THEIR INSTALLATION APPROVED BY A CITY ENVIRONMENTAL INSPECTOR AT AN ONSITE PRE-CON MEETING. CALL THE PERMIT CENTER AT 512-805-2630 TO SCHEDULE. [TXR150000 PART III.G.1. AND CITY CODE SECTION 86.529.(A)(1)]
3. CONTRACTOR MUST HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT PER TXR150000 PART III.F.7 AND CITY ODE SECTIONS 86.523 AND 86.529(B)(9) OR 86.529(C)(10). CONTRACTOR MUST MAINTAIN ALL ESC MEASURES,ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS AND DOCUMENT PER TXR150000 PARTIII.F.6-7 AND CITY CODE SECTION 86.529(C)(11).
4. PER TXR150000 PART III.F.1.(M)., LOCATIONS OF THE FOLLOWING, AS APPLICABLE, MUST BE MARKED ON THIS SHEET IN THE FIELD: THE TPDES CONSTRUCTION SITE NOTICE POSTING IN PUBLIC VIEW, STAGING, SPOILS STORAGE, CONCRETE WASHOUT, DUMPSTERS, PORTABLE TOILET(S), FUELING POINT(S), AND/OR OTHER POTENTIAL CONTAMINANT SOURCES. THIS SHEET MUST ALSO BE UPDATED AS THESE POTENTIAL CONTAMINANT SOURCES ARE MOVED OR OTHER CHANGES OCCUR ONSITE. DATE AND INITIAL ALL PEN AND INK CHANGES.
5. IF THERE IS A BREAK OF MORE THAN 14 DAYS DURING THE PROJECT WHERE NO DIRT WORK IS DONE ON A SITE PORTION(S) WITHIN THE LOC, TEMPORARY (OR PERMANENT) STABILIZATION IS REQUIRED PER TXR150000 PART III.F.2.(B).III /CITY CODE SECTION 86.529(A)(1)(G). SUCH DIRT WORK STOPPAGE INCLUDES TIME PERIODS BETWEEN ROUGH GRADING COMPLETION AND CONSTRUCTION START, BETWEEN CONSTRUCTION START AND FINAL GRADING, BETWEEN CONSTRUCTION AND FINAL STABILIZATION, ETC. USE TEMPORARY (OR PERMANENT) SEEDING, ROCK, GRAVEL (1" MINIMUM), CONCRETE RIP-RAP, DEGRADABLE STRAW MATTING, SHREDDED LANDSCAPE MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.
6. CONCRETE WASTE, CONCRETE WASH WATER, AND MASONRY/STUCCO/PAINT MIXING AND WASH WATER, AS APPLICABLE, MUST BE CONTAINED IN SUFFICIENT PRE-MADE STRUCTURE(S), LINED STRUCTURE(S), OR LINED PIT(S) PER TXR150000 PART V.D.
7. PAVEMENT, STONE, ROCK, RIPRAP, SOD, OR ANOTHER TYPE OF FLOW DISSIPATION IS REQUIRED AT ALL CURB CUTS AND OTHER DISCHARGE POINTS, SURROUNDING ALL GRATE INLETS, AND UNDER ALL OPEN DOWNSPOUTS, RAIN CHAINS, ROOF DRAINS/LARGE DOWNSPOUT NOZZLES(AKA COW TONGUES), ETC. DECOMPOSED GRANITE, PEA GRAVEL OR SMALLER, RUBBER OR LANDSCAPE MULCH, PINE BARK, PECAN SHELLS, WOOD CHIPS, AND ANY OTHER MATERIAL THAT IS EASILY DISPLACED DURING RAIN EVENTS ARE NOT ALLOWED IN THESE LOCATIONS.
8. POND OR OTHER DISTURBED SLOPES 3H:1V OR FLATTER MUST BE PERMANENTLY STABILIZED WITH SEED AND BIODEGRADABLE SOIL RETENTION BLANKETS WITH NO PLASTIC NETTING. DISTURBED SLOPES EXCEEDING 3H:1V REQUIRE SEED AND TYPE C OR D BLANKETS (OR EQUIVALENT CONTROL) UNTIL REVEGETATION IS ESTABLISHED. OR SOD. [COSM 1/1/2020 MODIFICATIONS TO THE COA AND TXDOT STANDARD SPECIFICATIONS; COSM SPECIFICATION 605S].
9. CITY CODE SECTION 14.026, §3305.2 CONSTRUCTION DEBRIS / TRASH CONTAINMENT. CONTRACTORS SHALL ENSURE THAT EVERY CONSTRUCTION, REMODEL, REPAIR, OR RENOVATION SITE HAS A METHOD OF CONTAINMENT FOR CONSTRUCTION DEBRIS AND TRASH. THE CONTRACTOR SHALL ENSURE THAT CONSTRUCTION DEBRIS AND TRASH ARE REMOVED FROM THE SITE ON A REGULAR BASIS SO THAT THE SITE IS MAINTAINED IN A CLEAN, SANITARY, AND SAFE CONDITION AT ALL TIMES.
10. CITY CODE SECTION 14.026, §3305.4 STREET CLEANING. ADJACENT STREETS TO THE CONSTRUCTION SITE SHALL BE MAINTAINED AND FREE OF DIRT, MUD, ROCKS AND OTHER CONSTRUCTION DEBRIS AT ALL TIMES. DIRT, GRAVEL, ETC., SHALL NOT BE SWEPT, WASHED, OR OTHERWISE DEPOSITED INTO UNPROTECTED STORM WATER CONVEYANCE SYSTEMS.
11. CITY CODE SECTION 14.026, §3305.5 SPOILS PILES. ALL SPOILS PILES SHALL BE UTILIZED ON SITE OR REMOVED FROM CONSTRUCTION SITES AS SOON AS POSSIBLE. WHILE ONSITE, ALL PILES MUST BE MINIMIZED IN HEIGHT, VOLUME AND FOOTPRINT, AND IN NO CASE SHALL PILES EXCEED EIGHT FEET IN HEIGHT. SEEDING OR COVERING OF UNDISTURBED PORTIONS OF SPOILS PILES IS REQUIRED IF THE PILES WILL NOT BE INCREASED OR DECREASED FOR MORE THAN 14 CALENDAR DAYS, AS SPECIFIED IN THE TPDES CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN REGULATIONS, REGARDLESS OF THE SIZE OF THE SITE AND/OR PILE. IN NO CASE SHALL SITE FINAL AND/OR BUILDING FINAL INSPECTIONS BE APPROVED UNTIL ALL SPOILS PILES HAVE BEEN REMOVED FROM CONSTRUCTION SITES.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

Know what's **below.**
Call before you dig.

EROSION CONTROL PLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

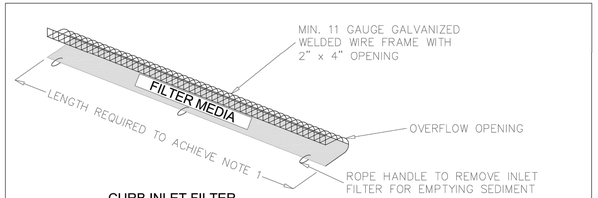
CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

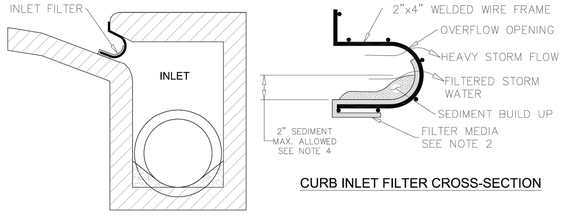
THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management
TX. P.E. FIRM #11525

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-7.0



CURB INLET FILTER

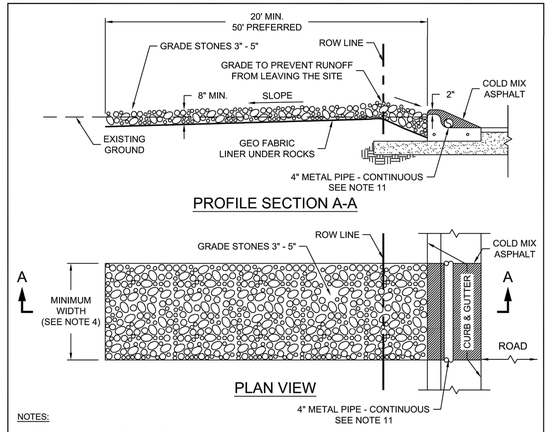


CURB INLET FILTER CROSS-SECTION

CURB INLET FILTER CROSS-SECTION SHOWING INLET PLACEMENT

NOTE:
1. THE INLET FILTER SHALL BE INSERTED INTO THE CURB INLET TO CREATE A COMPRESSION FIT IN THE INLET
2. THE FILTER MEDIA FOR PROJECTS WITHIN CITY OF SAN MARCOS JURISDICTION IS TO BE WOVEN FILTER FABRIC WITH A MINIMUM WATER FLOW RATE OF 300 GALLONS A MINUTE PER SQUARE FOOT(300 GAL/MIN/SF).
3. THE FILTER MEDIA IS TO BE ATTACHED TO THE WIRE FRAME WITH HOG RINGS LEAVING AN OVERFLOW OPENING ABOVE THE FILTER MEDIA.
4. INSPECTION SHALL BE MADE BY THE CONTRACTOR WEEKLY AND WITHIN 24 HOURS OF A RAIN EVENT AND SILT ACCUMULATION MUST BE REMOVED WHEN THE DEPTH REACHES 2 INCHES.
5. INLET FILTER WILL BE REMOVED UPON STABILIZATION OF SEDIMENT SOURCES

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CURB INLET PROTECTION	
RECORDED COPY SIGNED BY	2-15-2015	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	628S-1-SM
LAURIE MOYER, P.E.	ADOPTED		N.T.S. STANDARD DETAIL

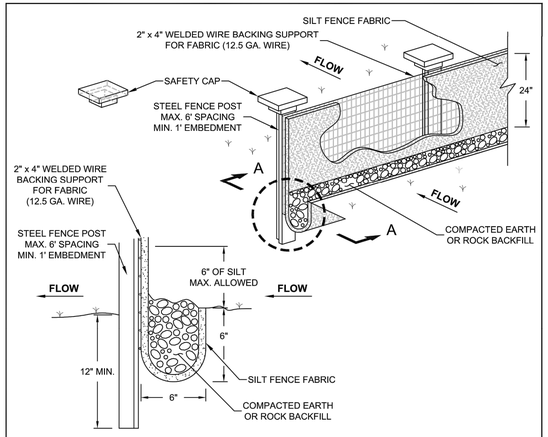


PROFILE SECTION A-A

PLAN VIEW

NOTES:
1. STONE SIZE: 3-5" OPEN GRADED ROCK.
2. LENGTH: 50' PREFERRED OR AS EFFECTIVE BUT NOT LESS THAN 20'.
3. THICKNESS: NOT LESS THAN 8".
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. DIMENSIONS OF SITE WILL DICTATE THE DIMENSIONS OF THE STABILIZED CONSTRUCTION ENTRANCES IF THE PREFERRED DIMENSIONS ARE NOT POSSIBLE ON SITE.
6. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
7. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASUREMENT DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENT THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
8. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
9. WHEN ALL SITE WORK IS COMPLETED, REMOVE STABILIZED CONSTRUCTION ENTRANCE COMPLETELY. REGRADE TO ORIGINAL CONDITION, ELEVATION AND RESTORE TO MATCH EXISTING OR PROPOSED CONDITIONS.
10. TOP OF GRADE STONES SHALL MATCH TOP OF EXISTING PAVEMENT OR CURB. COLD MIX ASPHALT & 4" METAL PIPE OR ALTERNATIVE WILL NOT BE REQUIRED WHERE THERE IS NO CATCH OR SPILL CURB.
11. PRE-FABRICATED CURB RAMPS ARE AN ACCEPTABLE ALTERNATIVE TO COLD MIX ASPHALT AND 4" METAL PIPE.

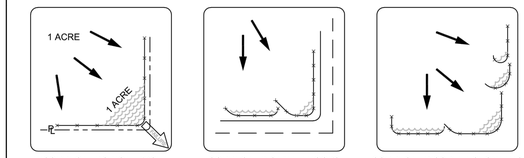
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



SECTION A-A

NOTES:
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS SHALL MATCH THE TOP OF THE FENCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1'.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 6" DEEP AND 6" WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY AND REPAIR OR REPLACEMENT SHALL BE MADE WITHIN 24 HOURS OF INSPECTION.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS PERMANENTLY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WITHIN 24 HOURS WHEN IT REACHES A DEPTH OF 6" OR AS DIRECTED BY OWNER. THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. INSTALL J-HOOK SPACING PER ENGINEER'S DESIGN , BUT NOT TO EXCEED 200'.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SILT FENCE	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

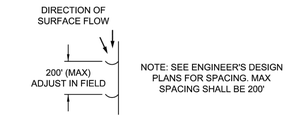


SILT FENCE TURNBACK DETAIL

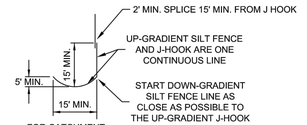
SILT FENCE PLACEMENT FOR PERIMETER CONTROL

PLAN VIEW

I. SPACING REQUIREMENTS:

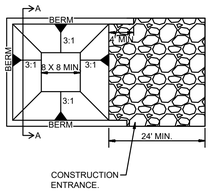


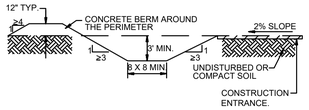
II. SIZING REQUIREMENTS:



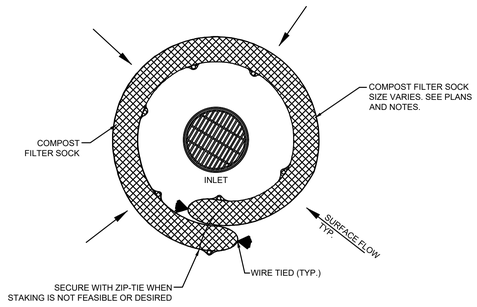
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SILT FENCE	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2

NOTES
1. SEE PLAN VIEW FOR CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRANAIGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS WITH INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINE ABOVE GROUND STORAGE SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE FLAT SUBSURFACE PIT THAT IS AT LEAST 8' x 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.
9. INSPECT BMPs EACH WORKDAY, AND MAINTAIN IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
10. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
11. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
12. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
13. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN SHALL BE TRANSPORTED FROM THE JOB SITE IN A CONTAINER AND DISPOSED OF PROPERLY.
14. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
15. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BE THE LOCAL JURISDICTION.

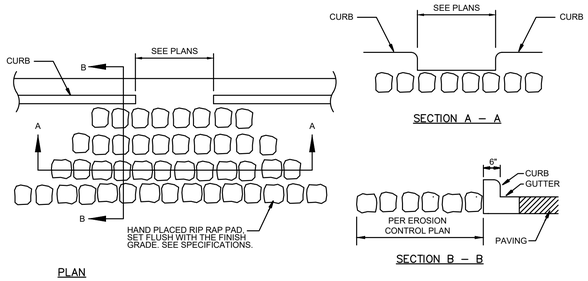




CONCRETE WASHOUT AREA DETAIL
N.T.S.



AREA/GRATE INLET PROTECTION DETAIL
N.T.S.



CURB CUT WITH RIP RAP
N.T.S.

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

EROSION CONTROL DETAILS

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

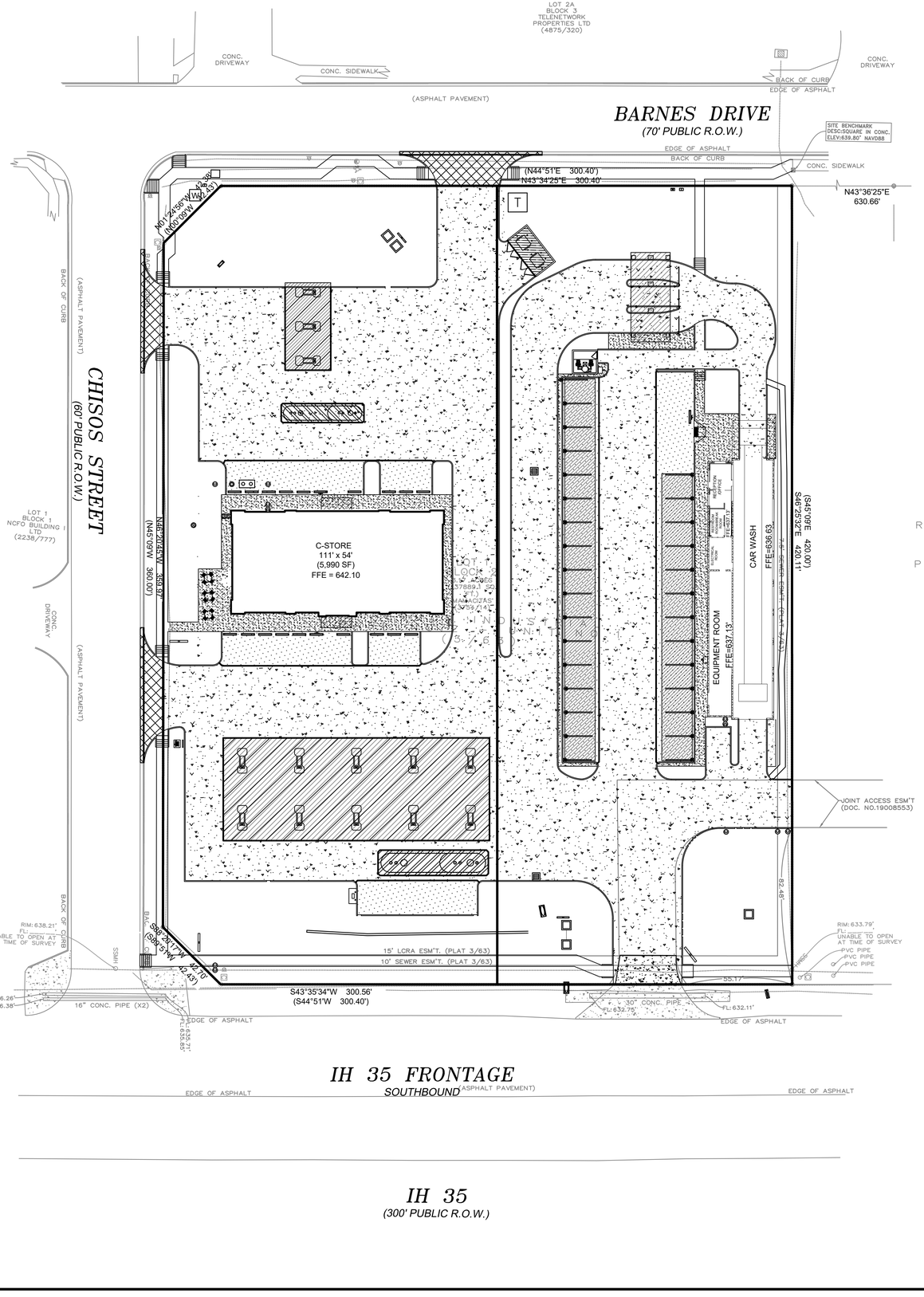
HAYS COUNTY, TEXAS 78666

LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103-20	C-7.1

TX. P.E. FIRM #11525

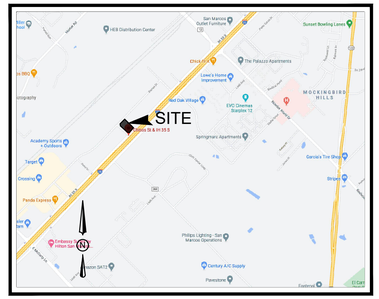


REPLAT OF LOT 2 THERMON INDUSTRIAL PARK NO. 2 - UNIT NO. 1 (18010054)
LOT 2-A
BLOCK 2
CTEC SM PROPERTY LLC
(DOC.NO.18010956)

0 60
Scale: 1" = 30 ' Feet

LEGEND

IRON PIPE FOUND	GAS METER
IRON ROD FOUND	TELEPHONE PEDESTAL
IRON ROD SET	CABLE PEDESTAL
"X" IN CONCRETE	SSMH SANITARY SEWER MANHOLE
PK FOUND	STMH STORM SEWER MANHOLE
CALCULATED POINT	ELECTRIC GROUND
CONCRETE MONUMENT	CONTROL POINT
FIRE HYDRANT	UNDERGROUND UTILITY MARKER SIGN
WATER METER	UNDERGROUND UTILITY TEST STATION
WATER VALVE	SIGN POST
CLEANOUT	ELECTRIC TRANSFORMER
GAS VALVE	TRAFFIC SIGNAL BOX
POWER POLE	P.U.E. PUBLIC UTILITY EASEMENT
DOWN GUY	D.E. DRAINAGE EASEMENT
ELECTRIC METER	B.L. BUILDING LINE
LIGHT POLE	(BRG.-DIST.) RECORD CALL
WOOD FENCE	GAS EXISTING GAS
CHAIN LINK FENCE	S EXISTING SANITARY SEWER
WIRE FENCE	FOC EXISTING FIBER OPTIC
METAL FENCE	W EXISTING WATER
	OHE OVERHEAD ELECTRIC LINE



VICINITY MAP
N.T.S.

PAVING LEGEND

EXPANSION JOINT (@ 60' MAX.)	
SAWCUT JOINT (@ 15 'MAX.)	
4" SIDEWALK	
5" LIGHT DUTY CONCRETE	
6" HEAVY DUTY CONCRETE	
7" HEAVY DUTY DUMPSTER CONCRETE	
TXDOT/CITY DRIVEWAY CONCRETE	
HEAVY DUTY CONCRETE PER FUELING PLANS	
HEAVY DUTY CONCRETE PER FUELING PLANS	
SANITARY SEWER MANHOLE	S
SANITARY SEWER CLEANOUT	©
SANITARY SEWER DOUBLE CLEANOUT	DC
DOMESTIC WATER METER IRRIGATION METER	W
FIRE HYDRANT	
FIRE DEPARTMENT CONNECTION-FDC	
LIGHT POLE	

PAVING GENERAL NOTES

1. STRIP & REMOVE FROM THE CONSTRUCTION AREA ALL TOPSOIL, ORGANICS & VEGETATION TO A MINIMUM DEPTH OF 6 INCHES.
2. CONTROL JOINTS FORMED BY SAWING ARE RECOMMENDED BOTH LONGITUDINAL AND TRANSVERSE DIRECTIONS. CONTROL JOINT SHALL BE SAWED WITHIN 3 HOURS AFTER PLACING CONCRETE. JOINTS SHALL BE PROPERLY CLEANED AND SEALED AS SOON AS POSSIBLE AFTER JOINTS ARE CUT.
3. DRAINAGE SHOULD BE MAINTAINED AWAY FROM THE FOUNDATION, BOTH DURING AND AFTER CONSTRUCTION. WATER SHOULD NOT BE ALLOWED TO POND NEAR THE FOUNDATION. THE FOLLOWING ITEMS SHOULD PROVIDE FOR POSITIVE DRAINAGE OF WATER AWAY FROM THE FOUNDATION: SIDEWALKS AND OTHER CONCRETE FLAT WORK, PARKING AREAS, DRIVEWAYS AND OTHER SURFACE DRAINAGE FEATURES, AND LANDSCAPING.
4. FRENCH DRAINS ARE RECOMMENDED AROUND ANY SLABS WHERE SEEPING GROUND WATER IS ENCOUNTERED DURING CONSTRUCTION.
5. SIDEWALK AROUND THE BUILDING SHALL NOT BE STRUCTURALLY CONNECTED TO THE BUILDING FOUNDATION UNLESS IT'S NOTED ON THE STRUCTURAL PLANS.
6. ALL EXPANSION JOINTS AND CRACK CONTROL JOINTS SHOULD BE SEALED TO PREVENT THE INFILTRATION OF WATER INTO THE SUBSURFACE. THIS IS PARTICULARLY IMPORTANT AROUND IRRIGATED LANDSCAPING AND ALONG THE DRAINAGE PATH OF ROOF DOWNSPOUTS.
7. LANDSCAPE ISLANDS SHOULD BE BACKFILLED WITH LOW PLASTICITY CLAYS TO REDUCE WATER INTRUSION INTO THE SUBSURFACE PAVEMENT STRUCTURES. CURBS SHOULD BE PROVIDED WITH WEEP HOLES IN LANDSCAPE AREAS TO REDUCE THE BUILD UP OF HYDROSTATIC PRESSURE AND TO REDUCE THE INTRUSION OF WATER INTO THE SUBSURFACE MATERIAL.
8. CURB AND GUTTER SHALL CONSIST OF STEEL REINFORCED CONCRETE AND SHALL BE SIX (6") INCHES HIGH, UNLESS OTHERWISE NOTED ON THE SITE/GRADING PLANS.
9. THE CONTRACTOR SHALL PROCEED WITH PAVING NO MORE THAN SEVENTY-TWO (72) HOURS AFTER DENSITY/MOISTURE TESTS HAVE BEEN TAKEN AND PASSED BY A REGULAR TESTING FIRM.
10. MANHOLE RIM ELEVATIONS, CLEAN-OUTS, VALVE BOXES, ETC. SHALL BE ADJUSTED TO FINISHED GRADE BY THE PAVING CONTRACTOR AT THE TIME OF PAVING.
11. SEE IRRIGATION PLAN FOR IRRIGATION SLEEVE PLACEMENT PRIOR TO PAVING CONSTRUCTION.

JOINT NOTE:

1. GC TO INSTALL EXPANSION JOINTS EVERY 60' MAX. AND WHEREVER THERE IS CHANGE IN PAVEMENT TYPE/ THICKNESS.
2. PAVEMENT SAW CUT SHALL BE MAX. 15' APART.

811 Know what's **below.** **Call** before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

PAVING PLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

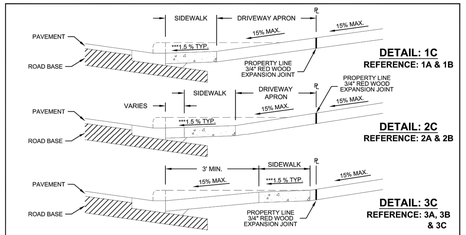
HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

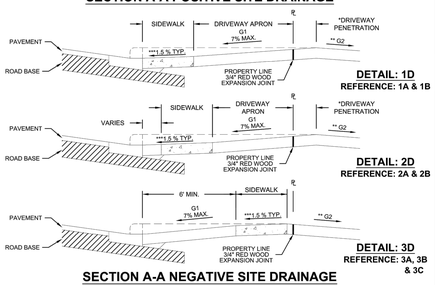
TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10-26-20	SEE SCALE BAR	103-20	C-8.0

TX. P.E. FIRM #11525



SECTION A-A POSITIVE SITE DRAINAGE



SECTION A-A NEGATIVE SITE DRAINAGE

*DRIVEWAY PENETRATION WILL EXTEND INTO THE PROPERTY UNTIL GRADING IS HIGHER THAN THAT OF THE CURB AT THE MAXIMUM G1 SLOPE. LIMITS OF PAVEMENT WILL EXTEND TO LIMITS OF DRIVEWAY PENETRATION.
** IG1 - G2I < 15%
*** 1.5% TYP., 1% MIN., 2% MAX.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	DRIVEWAYS - COMMON DETAILS	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-A-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

DRIVEWAY	CONCRETE THICKNESS	REINFORCEMENT	DRIVEWAY BASE
TYPE I	6" CLASS A 3,000 PSI	#3 BARS PLACED ON CHAIRS AT MID DEPTH OF SLAB AT NO MORE THAN 18" O.C. BOTH DIRECTIONS	2" COMPACTED SAND
TYPE II	7" CLASS C 3,600 PSI	#4 BARS PLACED ON CHAIRS AT MID DEPTH OF SLAB AT NO MORE THAN 18" O.C. BOTH DIRECTIONS	2" COMPACTED SAND

NOTES:

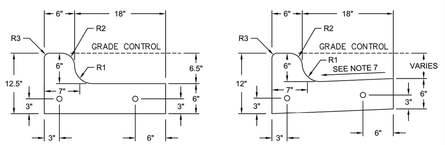
A. NEW PAVEMENT WILL MATCH EXISTING PAVEMENT THICKNESS AND TYPE.
B. IN NO INSTANCE SHALL THE REBAR BE PLACED DIRECTLY ON THE SUBGRADE, SAND CUSHION LAYER OR CLOSER THAN 2" TO THE OUTSIDE EDGE OF THE CONCRETE.

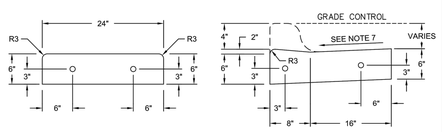
NOTES:

1. IF DIMENSION IS LESS THAN 5', REMOVE CURB AND GUTTER TO EXISTING JOINT AND POUR MONOLITHICALLY WITH DRIVEWAY. (SEE SHEET 1)
2. ALL DRIVEWAY WILL HAVE A CONTROL JOINT DOWN CENTER OF DRIVEWAY AND ON BOTH SIDES OF THE SIDEWALK PATH ACROSS THE DRIVEWAY. (SEE SHEET 3)
3. WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHALL BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2 IS GREATER THAN 15%."
4. DRIVEWAY WIDTHS AND RADIUS DIMENSIONS, ONE/TWO WAY TRAVEL REQUIREMENTS, AND GEOMETRIC LAY-OUT ARE HIGHLY VARIABLE, SUBJECT TO SITE SPECIFIC CONDITIONS AND REQUIREMENTS. SEE TRANSPORTATION CRITERIA MANUAL SECTION 5 "DRIVEWAYS" IF CONFLICT WITH DETAIL.
5. IF THE BASE IS OVER-EXCAVATED WHERE THE CURB AND GUTTER WERE REMOVED, BACKFILL WITH CONCRETE MONOLITHICALLY WITH THE DRIVEWAY.
6. DRIVEWAY SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
7. WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.
8. PAY ITEM: ASPHALT TRANSITION, LAYDOWN CURB AND GUTTER WILL BE PAID FOR AS SEPARATE LINE ITEM UNLESS NOTED ON PLANS. CURB AND GUTTER INSTALLED ON THE RADIUS OR ALONG THE RAMPS WILL BE SUBSIDIARY TO DRIVEWAY LINE ITEM.
9. ALL NEW DRIVEWAYS SHALL BE CONSTRUCTED PER DETAIL 433S-AR-SM, DRIVEWAYS - RADIUS CONNECTION 433S-AR-SM EXCEPT IN NEW SUBDIVISIONS (TYPICALLY) WHERE HOUSES ARE BUILT AFTER THE CURB IS INSTALLED.
10. IF BOTH OF THE FOLLOWING CONDITIONS ARE MET, THEN DETAIL 433S-AF-SM - DRIVEWAYS - FLARED CONNECTION MAY BE USED:
    A) THE DRIVEWAY CLASSIFIED AS TYPE 1.
    B) THERE AN EXISTING CURB ALREADY INSTALLED AT THE PROPOSED DRIVEWAY LOCATION.

REFERENCES
DETAIL 430S-2-SM
DETAIL 430S-3-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	DRIVEWAYS - COMMON DETAILS	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-A-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2



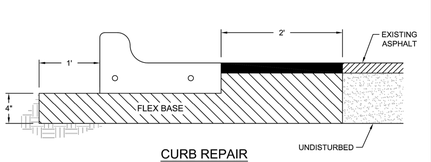


LABEL	RADIUS
R1	3 1/2"
R2	2 1/2"
R3	1/4"

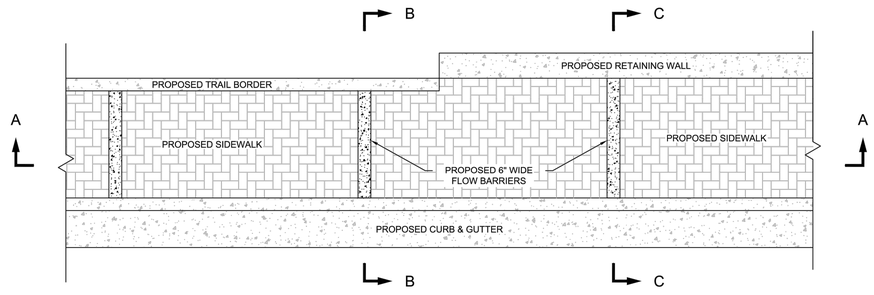
NOTES:
1. CONSTRUCTION CONTROL JOINTS AT 10' - 0" SPACING ALONG LENGTH OF CURB.
2. REINFORCING STEEL SHALL BE #3 BARS.
3. NO REBAR WILL BE ALLOWED IN CURB HEAD.
4. CONCRETE WILL BE 3000 PSI VIBRATED IN PLACE.
5. CONSTRUCT EXPANSION JOINTS AT A MAXIMUM OF 40'-0" ALONG THE LENGTH OF CURB. SEE DETAIL 430-3-SM.
6. FOR NEW CURB EXTEND ROAD BASE 3 FEET BEHIND BACK OF CURB PER DETAIL 1000S-10-SM. NOT REQUIRED FOR REMOVAL & REPLACEMENT OF CURB IF THE ALIGNMENT DOES NOT CHANGE.
7. MATCH CROSS-SLOPE OF ROAD. 2% TYPICAL ~ 1.5% MIN. OR 3% MAX.

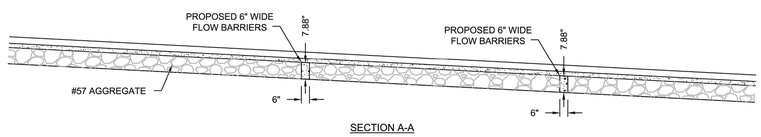
REFERENCES
DETAIL 430-3-SM

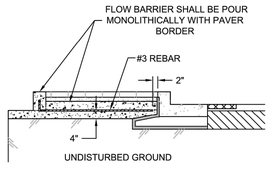
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	REINFORCED CURB AND GUTTER SECTIONS	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 430S-2-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

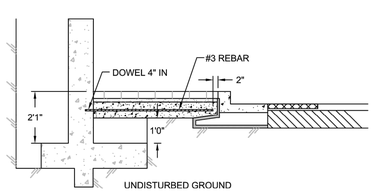


The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	REINFORCED CURB AND GUTTER SECTIONS	
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LAURIE MOYER, P.E.	ADOPTED		2 OF 2









NOTES:

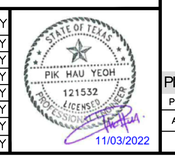
1. FLOW BARRIERS ARE SUBSIDIARY TO PAVER SIDEWALK PAY ITEM.

2. FLOW BARRIERS SHALL BE PLACED EVERY 10 FT.

3. REPLACE #57 STONE WITH CLASS A CONCRETE; AS SHOWN ON THIS SHEET.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021		
RECORD COPY SIGNED BY	1/1/2020		
LAURIE MOYER, P.E.	ADOPTED	SIDEWALK PAVERS	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.			STANDARD NO. 481S-PP-SM
			2 OF 2

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
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8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



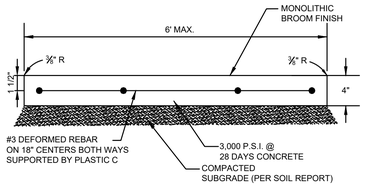
PAVING DETAILS-1

CAR WASH & GAS STATION

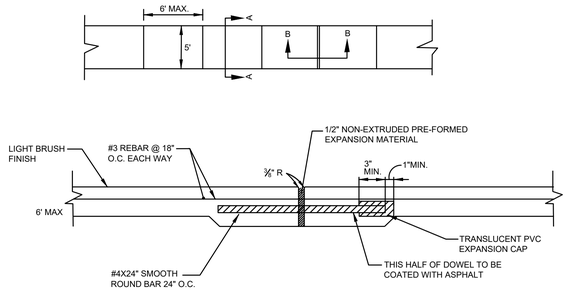
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management
TX. P.E. FIRM #11525

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103-20	C-8.1



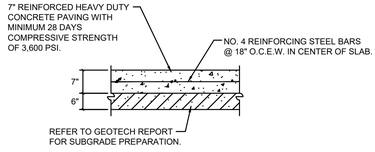
SECTION A-A



SECTION B-B

PRIVATE SIDEWALK DETAIL

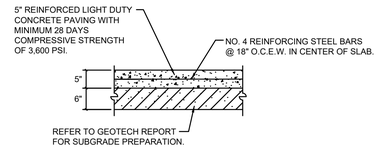
N.T.S.



NOTE:
1. CONTRACTOR TO VERIFY WITH CITY REQUIREMENTS. SHOULD THE CITY REQUIREMENTS DIFFER FROM DETAIL, THE CITY REQUIREMENTS WILL SUPERCEDE.
2. CONTRACTOR TO VERIFY REQUIREMENTS FOR INSTALLATION OF PAVEMENT IN FIRE LANE. CONTRACTOR TO INSTALL ACCORDING TO LOCAL, STATE OR GOVERNMENT JURISDICTION.

7" CONCRETE PAVEMENT

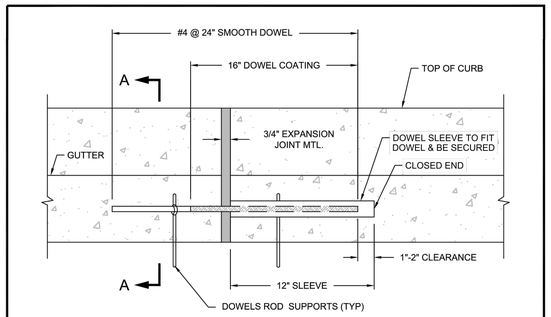
N.T.S.



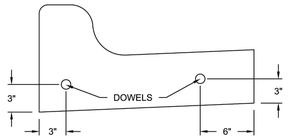
NOTE:
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2. CONTRACTOR TO VERIFY REQUIREMENTS FOR INSTALLATION OF PAVEMENT IN FIRE LANE. CONTRACTOR TO INSTALL ACCORDING TO LOCAL, STATE OR GOVERNMENT JURISDICTION.

5" CONCRETE PAVEMENT

N.T.S.



CURB EXPANSION JOINT DOWEL DETAIL

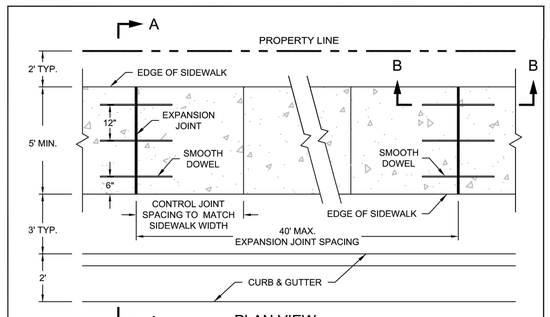


SECTION A - A

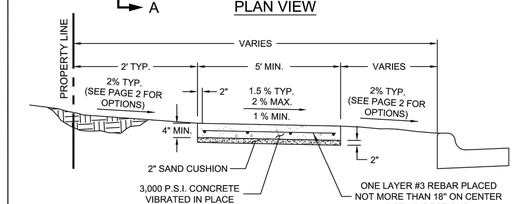
NOTES:

1. CONSTRUCT EXPANSION JOINTS AT A MAXIMUM OF 40'-0" ALONG THE LENGTH OF CURB, SIDEWALK AND CONCRETE PAVEMENT.
2. DOWELS MINIMUM SIZE IS 1/2" AND WILL BE EQUAL TO THE REBAR SIZE IF REBAR IN THE RE-ENFORCED CONCRETE IF GREATER THAN 1/2".

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CURB EXPANSION JOINT DOWEL DETAIL	
RECORD COPY SIGNED BY	6/1/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 430S-3-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



PLAN VIEW



SECTION A - A

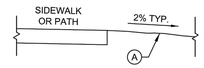
NOTES FOR REBAR PLACEMENT:

1. REINFORCEMENT SHALL BE ACCURATELY PLACED AT SLAB MID-DEPTH AND HELD FIRMLY IN PLACE BY MEANS OF BAR SUPPORTS OF ADEQUATE STRENGTH AND NUMBER THAT WILL PREVENT DISPLACEMENT AND KEEP THE STEEL AT ITS PROPER POSITION DURING THE PLACEMENT OF THE P.C. CONCRETE.
2. IN NO INSTANCE SHALL THE STEEL BE PLACED DIRECTLY ON THE SUBGRADE, SAND CUSHION LAYER OR CLOSER THAN 2" TO THE OUT SIDE EDGE OF THE CONCRETE.

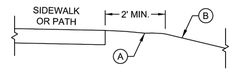
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SIDEWALK CONSTRUCTION	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

NOTES:

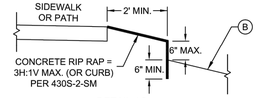
1. CONTROL JOINTS SHALL BE 1/4 INCH WIDE AND 3/4 INCH DEEP TOOLED OR SAW CUT INTO SIDEWALK.
2. CONSTRUCT 3/4" REDWOOD EXPANSION JOINTS AT MAXIMUM 40'- 0" SPACING ALONG LENGTH OF SIDEWALK. EXPANSION JOINTS SHALL INCLUDE SMOOTH DOWELS CENTERED TO THE JOINT AT 12" C-C. PER DETAIL 430S-3-SM.
3. IF SIDEWALK IS ADJOINED TO CURB, COLD JOINT IS REQUIRED, UNLESS APPROVED BY THE CITY INSPECTOR.
4. RAMPS AT INTERSECTION WILL FOLLOW CITY DETAIL 432S-3-SM.
5. MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY SPECIFICATIONS.
6. REFER TO SPEC. 410S.25 FOR DEFECTIVE WORK. THE LIMITS OF THE REPLACEMENT SHALL EXTEND FROM JOINT TO JOINT, AS DETERMINED BY THE INSPECTOR.



DETAIL 1A



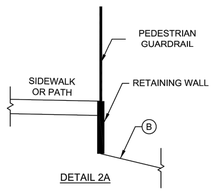
DETAIL 1B



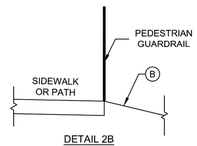
DETAIL 1C

MAX SLOPES		
MATERIAL	(A)	(B)
GRASS	4H : 1V	3H : 1V
CONCRETE	3H : 1V	2H : 1V

(DETAIL 1) : NO PROTECTION REQUIRED



DETAIL 2A



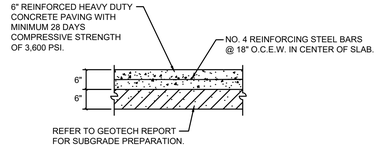
DETAIL 2B

REFERENCES
DETAIL 430S-3-SM
DETAIL 432S-3-SM

(DETAIL 2) : EDGE PROTECTION REQUIRED

WHEN OPTIONS SHOWN IN (DETAIL 1) CAN NOT BE MET

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	SIDEWALK CONSTRUCTION	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2



NOTE:
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6" CONCRETE PAVEMENT

N.T.S.

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

PAVING DETAILS-2

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

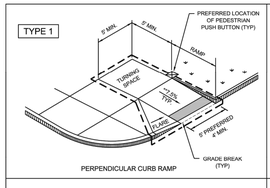
HAYS COUNTY, TEXAS 78666

LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

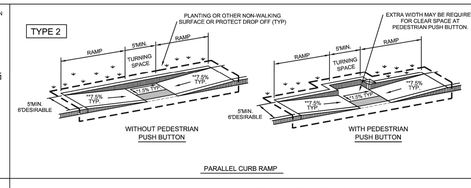
TRIANGLE ENGINEERING LLC
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Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103-20	C-8.2

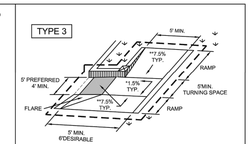
TX. P.E. FIRM #11525

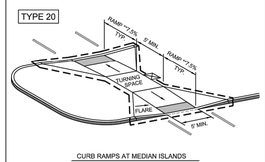


PERPENDICULAR CURB RAMP

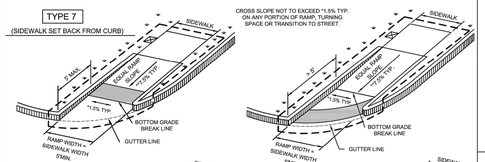


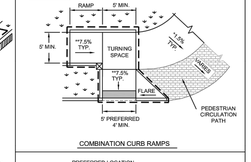
PARALLEL CURB RAMP



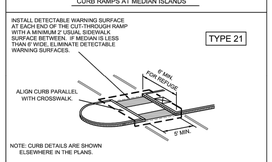


CURB RAMPS AT MEDIAN ISLANDS

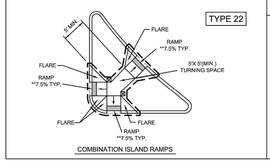




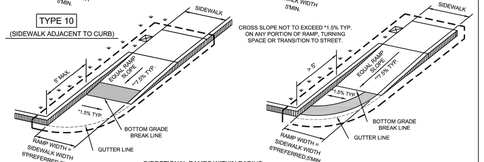
COMBINATION CURB RAMPS



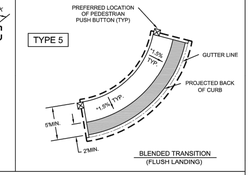
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.



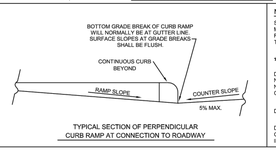
COMBINATION ISLAND RAMPS



DIRECTIONAL RAMPS WITHIN RADIUS



BLENDED TRANSITION (FLUSH LANDING)



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.
MAX RAMP LENGTH IS 15' (SEE NOTE 3)
FLARE - SEE NOTE 7
TURNING SPACE - SEE NOTE 5

★ 1.5% TYPICAL, 1% MINIMUM, 2% MAXIMUM
★★ 7.5% TYPICAL, 8.3% MAXIMUM

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE
GRADE BREAK
RAMP LIMITS OF PAYMENT

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021
RECORD COPY SIGNED BY	1/1/2021
LAURIE MOYER, P.E.	ADOPTED
ADA RAMPS	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-3-SM
	1 OF 4

GENERAL NOTES:

CURB RAMPS

1. INSTALL A CURB RAMP OR BLENDED TRANSITION AT EACH PEDESTRIAN STREET CROSSING.
2. ALL SLOPES SHOWN ARE TYPICAL ALLOWABLE. CROSS SLOPES OF 1.5% AND LESSER RUNNING SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED. THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.3% MAX, BUT THE RAMP LENGTH SHALL NOT EXCEED 15' MIN. IF 8.3% CANNOT BE ACHIEVED.
3. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
4. THE MINIMUM SIDEWALK WIDTH IS 5'. WHERE THE SIDEWALK IS ADJACENT TO THE BACK OF CURB, A 6' SIDEWALK WIDTH IS DESIRABLE. WHERE A 5' SIDEWALK CANNOT BE PROVIDED DUE TO SITE CONSTRAINTS, SIDEWALK WIDTH MAY BE REDUCED TO 4' FOR SHORT DISTANCES. 5'X 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' ARE REQUIRED.
5. **TURNING SPACES** SHALL BE 5'X 5' MINIMUM, CROSS SLOPE SHALL BE MAXIMUM 2%.
6. CLEAR SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X 4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
7. PROVIDE **FLARED SIDES** WHERE THE PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP. FLARED SIDES SHALL BE SLOPED AT 10% MAXIMUM, MEASURED PARALLEL TO THE CURB. RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTED, SUBSTANTIALLY OBSTRUCTED, OR OTHERWISE PROTECTED.
8. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE LATEST DRAFT OF THE PROPOSED GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT OF WAY (PROWAG) AS PUBLISHED BY THE U.S. ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD (ACCESS BOARD).
9. TO SERVE AS A PEDESTRIAN REFUGE AREA, THE MEDIAN SHOULD BE A MINIMUM OF 6' WIDE, MEASURED FROM BACK OF CURBS. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
10. SMALL CHANNELIZATION ISLANDS, WHICH DO NOT PROVIDE A MINIMUM 5'X 5' LANDING AT THE TOP OF CURB RAMPS, SHALL BE CUT THROUGH LEVEL WITH THE SURFACE OF THE STREET.
11. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL ALIGN WITH THEORETICAL CROSSWALKS UNLESS OTHERWISE DIRECTED.
12. PROVIDE CURB RAMPS TO CONNECT THE PEDESTRIAN ACCESS ROUTE AT EACH PEDESTRIAN STREET CROSSING. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS.
13. CURB RAMPS AND LANDINGS SHALL BE CONSTRUCTED AND PAID FOR IN ACCORDANCE WITH ITEM 4325 REINFORCED CEMENT CONCRETE SIDEWALK.
14. PLACE CONCRETE AT A MINIMUM DEPTH OF 5" FOR RAMPS, FLARES AND LANDINGS, UNLESS OTHERWISE DIRECTED.
15. FURNISH AND INSTALL NO. 3 REINFORCING STEEL BARS AT 18" O.C. BOTH WAYS, UNLESS OTHERWISE DIRECTED.
16. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
17. CURBS SHOWN ON SHEET 1 WITHIN THE LIMITS OF PAYMENT ARE CONSIDERED PART OF THE CURB RAMP FOR PAYMENT, WHETHER IT IS CONCRETE CURB, GUTTER, OR COMBINED CURB AND GUTTER.
18. EXISTING FEATURES THAT COMPLY WITH APPLICABLE STANDARDS MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.

DETECTABLE WARNING MATERIAL

19. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH PROWAG. THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH AND INSTALL AN APPROVED CAST-IN-PLACE DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE MATERIAL ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
20. DETECTABLE WARNING MATERIALS MUST MEET TXDOT DEPARTMENTAL MATERIALS SPECIFICATION DMS 4350 AND BE LISTED ON THE MATERIAL PRODUCER LIST. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
21. DETECTABLE WARNING SURFACES MUST BE FIRM, STABLE AND SLIP RESISTANT.
22. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24 INCHES IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
23. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS AT THE BACK OF CURB AND NEITHER END OF THAT EDGE IS GREATER THAN 5 FEET FROM THE BACK OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.

DETECTABLE WARNING MATERIAL

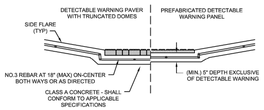
24. SHADED AREAS ON SHEET 1 OF 4 INDICATE THE APPROXIMATE LOCATION FOR THE DETECTABLE WARNING SURFACE FOR EACH CURB RAMP TYPE.

DETECTABLE WARNING PAVERS (IF USED)

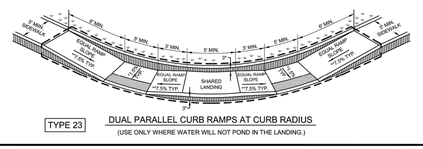
25. FURNISH DETECTABLE WARNING PAVER UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.
26. LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT (25%) OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.

SIDEWALKS

27. PROVIDE CLEAR GROUND SPACE AT OPERABLE PARTS, INCLUDING PEDESTRIAN PUSH BUTTONS. OPERABLE PARTS SHALL BE PLACED WITHIN UNOBSTRUCTED REACH RANGE SPECIFIED IN PROWAG SECTION R406.
28. PLACE TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SO AS NOT TO OBSTRUCT THE PEDESTRIAN ACCESS ROUTE OR CLEAR GROUND SPACE.
29. STREET GRADES AND CROSS SLOPES SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
30. CHANGES IN LEVEL GREATER THAN 1/4 INCH ARE NOT PERMITTED.
31. THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. THE RUNNING SLOPE OF SIDEWALKS AND CROSSWALKS WITHIN THE PUBLIC RIGHT OF WAY MAY FOLLOW THE GRADE OF THE PARALLEL ROADWAY. WHERE A CONTINUOUS GRADE GREATER THAN FIVE PERCENT (5%) MUST BE PROVIDED, HANDRAILS MAY BE DESIRABLE TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS. IF PROVIDED, HANDRAILS SHALL COMPLY WITH PROWAG R409.
32. HANDRAIL EXTENSIONS SHALL NOT PROTRUDE INTO THE USABLE LANDING AREA OR INTO INTERSECTING PEDESTRIAN ROUTES.
33. DRIVEWAYS AND TURNOUTS SHALL BE CONSTRUCTED AND PAID FOR IN ACCORDANCE WITH ITEM "INTERSECTIONS, DRIVEWAYS AND TURNOUTS". SIDEWALKS SHALL BE CONSTRUCTED AND PAID FOR IN ACCORDANCE WITH ITEM, "SIDEWALKS".
34. SIDEWALK DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.



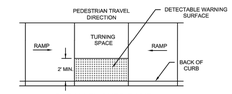
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS



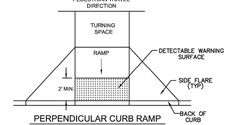
TYPE 23

DUAL PARALLEL CURB RAMPS AT CURB RADIUS
(USE ONLY WHERE WATER WILL NOT POND IN THE LANDING.)

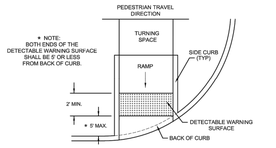
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

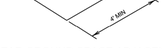


DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

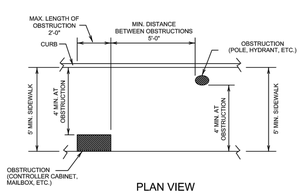
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021
RECORD COPY SIGNED BY	1/1/2021
LAURIE MOYER, P.E.	ADOPTED
ADA RAMPS	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-3-SM
	2 OF 4



PROTECTED ZONE
In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27" and 80" above the surface.

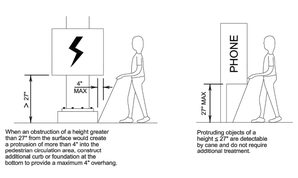


CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



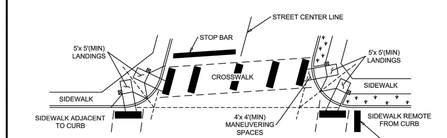
PLAN VIEW
PLACEMENT OF STREET FIXTURES

(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)

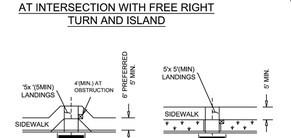


DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

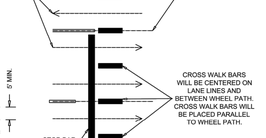
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021
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LAURIE MOYER, P.E.	ADOPTED
ADA RAMPS	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-3-SM
	3 OF 4



SKEWED INTERSECTION WITH "LARGE" RADIUS

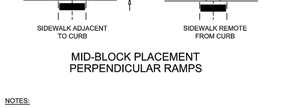


AT INTERSECTION WITH FREE RIGHT TURN AND ISLAND

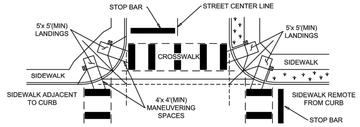




SKEWED INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

TYPICAL CROSSING LAYOUTS

NOTES:

1. CROSSWALK STRIPING WILL BE PER CITY OF SAN MARCOS DETAIL 871S-1-SM PAVEMENT MARKING.
2. STREET GRADES AND CROSS SLOPES SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
3. RAMPS ARE SHOWN HERE WITHOUT DETECTABLE WARNINGS FOR SIMPLICITY. DETECTABLE WARNINGS ARE REQUIRED AT THE LOCATIONS SHOWN ON THE PED STANDARD (SHEET 1 AND 2 OF 4) AND IN ACCORDANCE WITH THE DETAILS SHOWN BELOW.
4. SMALL CHANNELIZATION ISLANDS, WHICH CAN NOT PROVIDE A MINIMUM OF 5' X 5' LANDING AT THE TOP OF RAMPS, SHALL BE CUT THROUGH LEVEL WITH THE SURFACE OF THE STREET.

LEGEND:

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ⊠

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2020
RECORD COPY SIGNED BY	1/1/2020
LAURIE MOYER, P.E.	ADOPTED
ADA RAMPS	
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-3-SM
	4 OF 4

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY



PAVING DETAILS-3

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 | F: 469.213.7145 | E: info@triangle-engr.com
W: triangle-engr.com | O: 1784 McDermott Drive, Suite 110, Allen, TX 75013

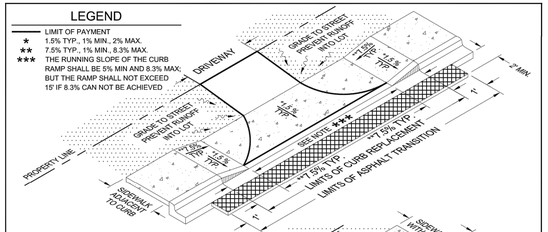
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103-20	C-8.3

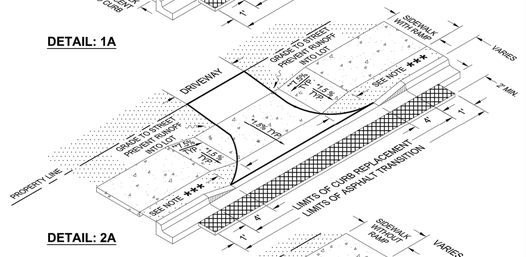
TX. P.E. FIRM #11525

LEGEND

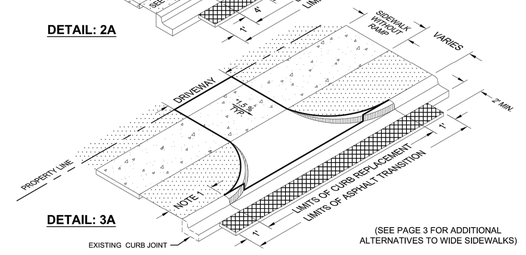
LIMIT OF PAYMENT
★ 1.5% TYP., 1% MIN., 2% MAX.
★★ 7.5% TYP., 1% MIN., 8.3% MAX.
★★★ THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 5% MIN AND 8.3% MAX; BUT THE RAMP SHALL NOT EXCEED 15' IF 8.3% CAN NOT BE ACHIEVED



DETAIL: 1A



DETAIL: 2A



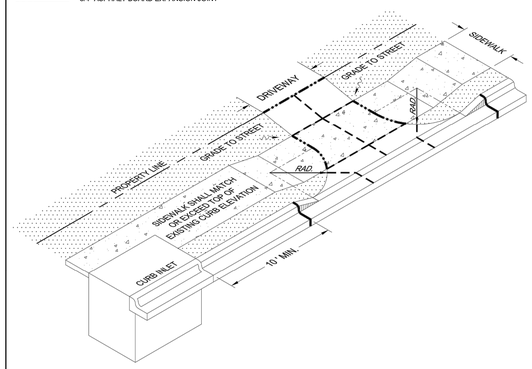
DETAIL: 3A

(SEE PAGE 3 FOR ADDITIONAL ALTERNATIVES TO WIDE SIDEWALKS)

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD DRIVEWAYS RADIUS CONNECTION	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-AR-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 3

LEGEND

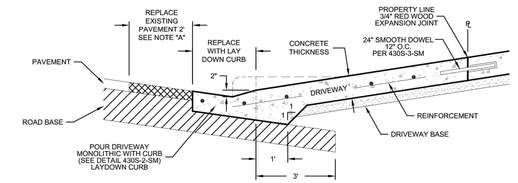
CONTROL JOINTS - 3/4" DEEP x 1/4" WIDE
3/4" REDWOOD EXPANSION JOINTS
3/4" ASPHALT BOARD EXPANSION JOINT



DRIVEWAY	DRIVEWAY CRITERIA	DRIVEWAY WIDTH FEET		RADIUS DIM. (RAD) FEET	
TYPE	USE	MIN.	MAX.	MIN.	MAX.
I	RESIDENTIAL UP TO 6 OFF-STREET PARKING SPACES	10'	18'	5'	5'
II	RESIDENTIAL 7+ OFF-STREET PARKING SPACES (ONE-WAY)	12'	16'	5'	10'
II	RESIDENTIAL 7+ OFF-STREET PARKING SPACES (TWO-WAY)	20'	24'	5'	10'
II	MIXED USE / COMMERCIAL (ONEWAY)	12'	18'	5'	10'
II	MIXED USE / COMMERCIAL (TWOWAY)	20'	32'	10'	15'
II	INDUSTRIAL / SERVICE	30'	40'	10'	30'

DRIVEWAY DIMENSION

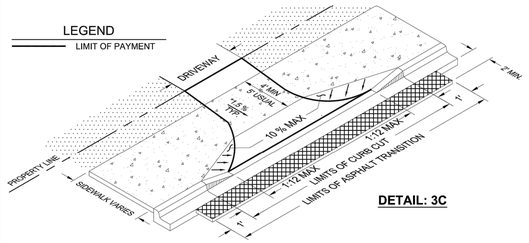
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD DRIVEWAYS RADIUS CONNECTION	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-AR-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 3



CURB RADIUS CONNECTION

LEGEND

LIMIT OF PAYMENT



DETAIL: 3C

WIDE SIDEWALK ALTERNATIVE

REFERENCES
DETAIL 430S-2-SM
DETAIL 430S-3-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD DRIVEWAYS RADIUS CONNECTION	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-AR-SM
LAURIE MOYER, P.E.	ADOPTED		3 OF 3

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
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8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

PAVING DETAILS-4

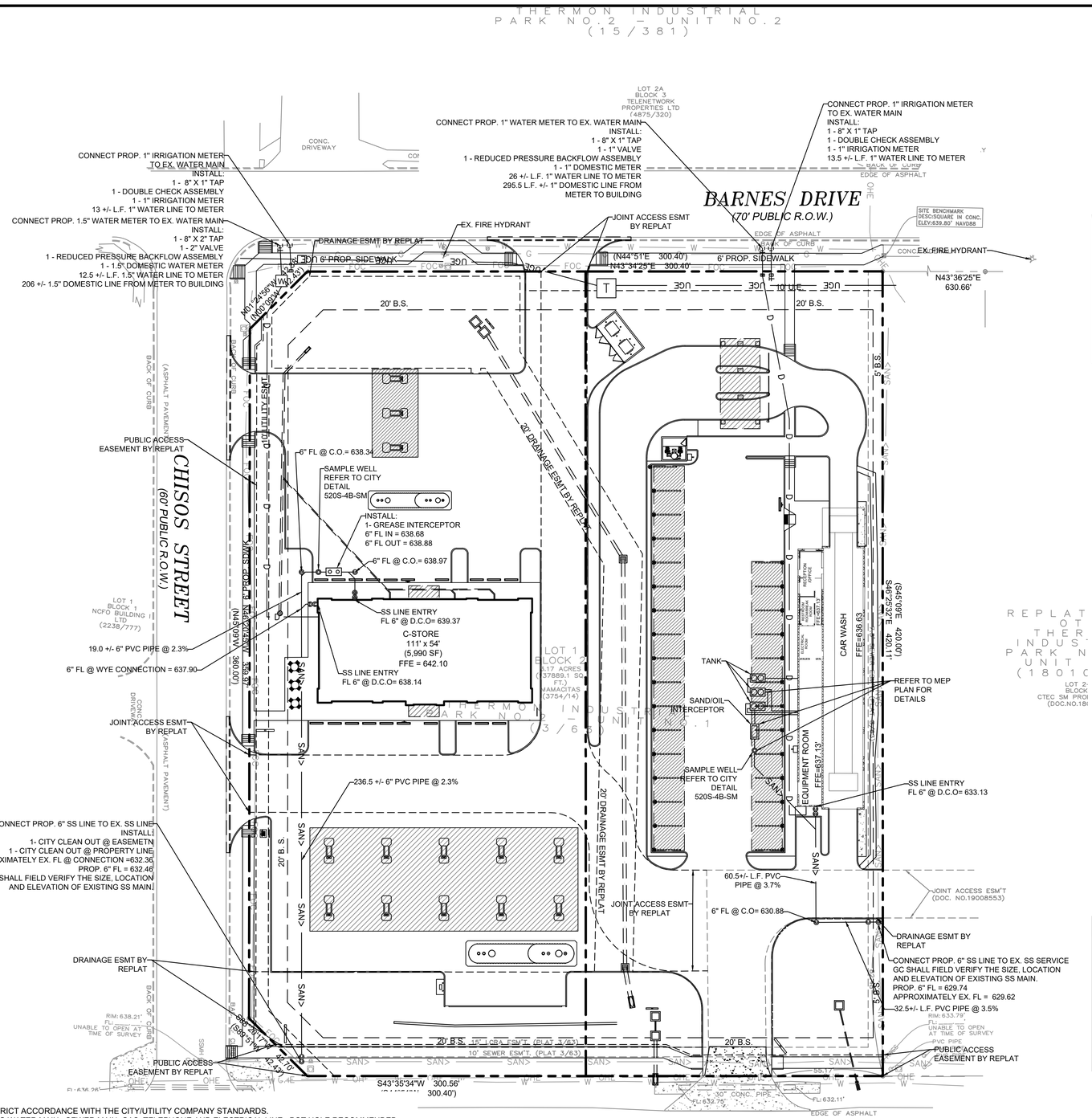
CAR WASH & GAS STATION

IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103–20	C-8.4

TX. P.E. FIRM #11525

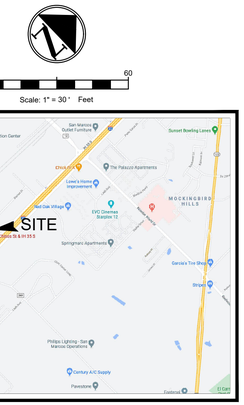


LEGEND

IRON PIPE FOUND	GAS METER
IRON ROD FOUND	TELEPHONE PEDESTAL
IRON ROD SET	CABLE PEDESTAL
"X" IN CONCRETE	SSMH SANITARY SEWER MANHOLE
PK FOUND	STMH STORM SEWER MANHOLE
CALCULATED POINT	ELECTRIC GROUND
CONCRETE MONUMENT	CONTROL POINT
FIRE HYDRANT	UNDERGROUND UTILITY MARKER SIGN
WATER METER	UNDERGROUND UTILITY TEST STATION
WATER VALVE	SIGN POST
CLEANOUT	ELECTRIC TRANSFORMER
GAS VALVE	TRAFFIC SIGNAL BOX
POWER POLE	P.U.E. PUBLIC UTILITY EASEMENT
DOWN GUY	D.E. DRAINAGE EASEMENT
ELECTRIC METER	B.L. BUILDING LINE
LIGHT POLE	(BRG.–DIST.) RECORD CALL
WOOD FENCE	GAS EXISTING GAS
CHAIN LINK FENCE	S EXISTING SANITARY SEWER
WIRE FENCE	FOC EXISTING FIBER OPTIC
METAL FENCE	W EXISTING WATER
	E OVERHEAD ELECTRIC LINE

UTILITY LEGEND

SANITARY SEWER LINE	SAN>
WATER MAIN	W W
DOMESTIC WATER LINE	D D
STORM LINE	
SANITARY SEWER CLEANOUT	
SANITARY SEWER DOUBLE CLEANOUT	
DOMESTIC WATER METER	W
IRRIGATION METER	I
FIRE HYDRANT	



VICINITY MAP
N.T.S.

CAR WASH FLOW CALCULATOR

Select Development Type:	Type II

Fixture	Occupancy	Type	Amount
Bathtub	Private	Faucet	
Bathtub	Public	Faucet	
Bidet	Private	Faucet	
Combination Fixture	Private	Faucet	
dishwashing machine	Private	Automatic	
Drinking fountain	Offices, etc.	3/8" valve	
Kitchen sink	Private	Faucet	1
Kitchen sink	Hotel, Restaurant	Faucet	
Laundry trays(1 to 3)	Private	Faucet	
Lavatory	Private	Faucet	2
Lavatory	Public	Faucet	
Service sink	Offices, etc.	Faucet	1
Shower head	Public	Mixing Valve	
Shower head	Private	Mixing Valve	
Urinal	Public	1" flush valve	
Urinal	Public	3/4" flush valve	
Urinal	Public	flush tank	
Washing Machine(8 lb.)	Private	Automatic	
Washing Machine(8 lb.)	Public	Automatic	
Washing Machine(15 lb.)	Public	Automatic	9
Water closet	Private	Flush Valve	
Water closet	Private	Flush tank	
Water closet	Public	Flush Valve	
Water closet	Public	Flush tank	
Water closet	Private or Public	Flushometer tank	
Bedpan Washers	AWWA Fixtures		
Dental Unit	AWWA Fixtures		
(Hose-50 ft. Wash Down)			
-1/2 in	AWWA Fixtures		
-5/8 in	AWWA Fixtures		
-3/4 in	AWWA Fixtures		

AWWA =	44.69	GPM
IPC =	26.8	GPM

This development's lowest Peak Demand from AWWA and IPC is 26.8 gpm. This development will need to install a 1" meter and has a LUE of [6]

C-STORE AND GAS STATION FLOW CALCULATOR

Select Development Type:	Type II

Fixture	Occupancy	Type	Amount
Bathtub	Private	Faucet	
Bathtub	Public	Faucet	
Bidet	Private	Faucet	
Combination Fixture	Private	Faucet	
dishwashing machine	Private	Automatic	
Drinking fountain	Offices, etc.	3/8" valve	
Kitchen sink	Private	Faucet	
Kitchen sink	Hotel, Restaurant	Faucet	2
Laundry trays(1 to 3)	Private	Faucet	
Lavatory	Private	Faucet	
Lavatory	Public	Faucet	4
Service sink	Offices, etc.	Faucet	
Shower head	Public	Mixing Valve	
Shower head	Private	Mixing Valve	
Urinal	Public	1" flush valve	
Urinal	Public	3/4" flush valve	2
Urinal	Public	flush tank	
Washing Machine(8 lb.)	Private	Automatic	
Washing Machine(8 lb.)	Public	Automatic	
Washing Machine(15 lb.)	Public	Automatic	
Water closet	Private	Flush Valve	
Water closet	Private	Flush tank	
Water closet	Public	Flush Valve	4
Water closet	Public	Flush tank	
Water closet	Private or Public	Flushometer tank	
Bedpan Washers	AWWA Fixtures		
Dental Unit	AWWA Fixtures		
(Hose-50 ft. Wash Down)			
-1/2 in	AWWA Fixtures		
-5/8 in	AWWA Fixtures		
-3/4 in	AWWA Fixtures		

AWWA =	62.24	GPM
IPC =	56.4	GPM

This development's lowest Peak Demand from AWWA and IPC is 56.4 gpm. This development will need to install a 1.5" or 2" meter and has a LUE of [8.5]

WATER METER & SANITARY SEWER SCHEDULE - CAR WASH

ID	TYPE	SIZE	NO.
(D)	DOMESTIC	1"	1
(I)	IRRIGATION	1"	1
	SANITARY SEWER	6"	

WATER METER & SANITARY SEWER SCHEDULE - C STORE W/ GAS STATION

ID	TYPE	SIZE	NO.
(D)	DOMESTIC	1.5"	1
(I)	IRRIGATION	1"	1
	SANITARY SEWER	6"	

NOTE: FOR CAR WASH, IT INCLUDES 2 TOILETS, 2 SINKS FOR BATH ROOM, 1 KITCHEN SINK AND 1 SERVICE SINK. BESIDES, 12,000 GALLONS FROM OTHER FEATURES. THE 9 WASH MACHINES HAS BEEN CHOSEN TO EQUATE THE REST OF FEATURES, SINCE THE TOTAL FLOW OF 9 WASH MACHINES IS CLOSE TO 12000 GPD.

UTILITY GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE CITY/UTILITY COMPANY STANDARDS.
2. FIELD VERIFY LOCATION OF EXISTING WATER MAIN , SEWER MAIN, GAS, TELEPHONE AND ELECTRICAL LINE. POT HOLE RECOMMENDED PRIOR TO CONSTRUCTION BEGIN. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH UTILITY SERVICE PROVIDERS.
3. THE LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS IS TAKEN FROM AS-BUILTS, UTILITY PLANS OR SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE OWNERS OF SUCH UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA TO CONFIRM THEIR EXACT LOCATION AND TO DETERMINE WHETHER ANY ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL UNDERGROUND UTILITIES. IF EXISTING UNDERGROUND UTILITIES ARE DAMAGED, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPAIRING THE UTILITY.
4. WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR THE UTILITIES OR SERVICE LINES WITH THE SAME TYPE OF ORIGINAL MATERIAL AND CONSTRUCTION, OR BETTER, UNLESS OTHERWISE SHOWN OR NOTED ON THE PLANS, AT HIS OWN COST AND EXPENSE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS WITH UTILITIES.
5. ALL EXCAVATIONS, TRENCHING AND SHORING OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE U. S. DEPARTMENT OF LABOR, OSHA, CONSTRUCTION SAFETY AND HEALTH REGULATIONS AND ANY AMENDMENTS THERETO.
6. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES, FENCES, CULVERT PIPES, DRAINAGE DITCHES, DRIVEWAYS, PRIVATE YARDS AND ROADWAYS.
7. ANY CHANGES NEEDED AFTER CONSTRUCTION PLANS HAVE BEEN RELEASED, SHALL BE APPROVED BY THE CITY ENGINEER. THESE CHANGES MUST BE RECEIVED IN WRITING.
8. THE CONTRACTOR SHALL PROVIDE "RED LINED" MARKED PRINTS TO THE ENGINEER PRIOR TO FINAL INSPECTION INDICATING ALL CONSTRUCTION WHICH DEVIATED FROM THE PLANS OR WAS CONSTRUCTED IN ADDITION TO THAT INDICATED ON THE PLANS.

NOTES:
1. CHECK VALVES TO BE USED AS NEEDED TO PREVENT LOW-HEAD DRAINAGE.
2. PVC PIPE TO BE SIZED SUCH THAT FLOWS WILL NOT EXCEED VELOCITY OF 5 FPS.
3. PVC PIPE JOINS TO BE PRIMED 2. COLORED PREMER BEFORE APPLYING PVC CEMENT.

811 Know what's below. Call before you dig.

NO.	DATE	DESCRIPTION	BY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	03/30/2022	Per TIA Comments	AY
6	05/19/2022	3rd WPP2 SUBMITTAL	AY
7	05/27/2022	5th SPP SUBMITTAL	AY
8	08/05/2022	3RD TXDOT SUBMITTAL	AY
9	08/18/2022	4TH WPP2 SUBMITTAL	AY
10	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS · PIK HAU YEOH · 121532 · LICENSED · PROFESSIONAL ENGINEER
11/03/2022

UTILITY PLAN

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

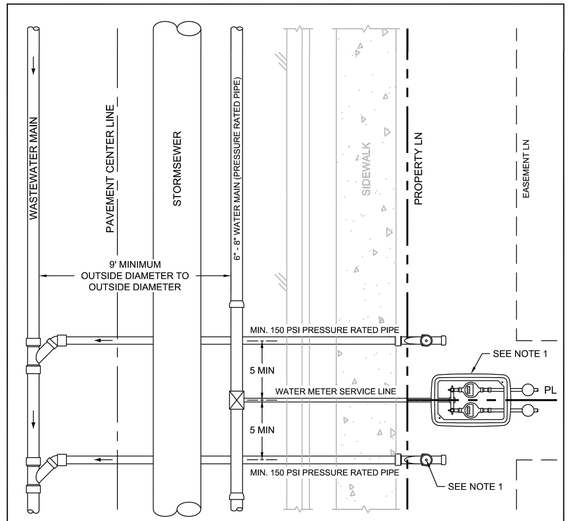
HAYS COUNTY, TEXAS 78666

THERMON INDUSTRIAL PARK, LOT 1, BLOCK 2

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	10–26–20	SEE SCALE BAR	103–20	C-9.0

TX. P.E. FIRM #11525



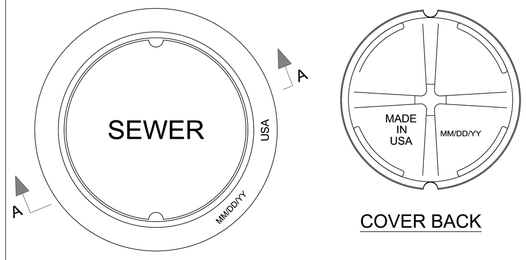
MINIMUM SEPARATION REQUIREMENT OF SERVICES
N.T.S.

NOTES:

1. FOR WATER METER AND WASTEWATER CLEANOUT SEE STANDARD DETAILS 520S-1-SM & 520S-9-SM.
2. THE DETAIL ABOVE SHOWS MINIMUM SEPARATION REQUIREMENTS FOR A TYPICAL SUBDIVISION.

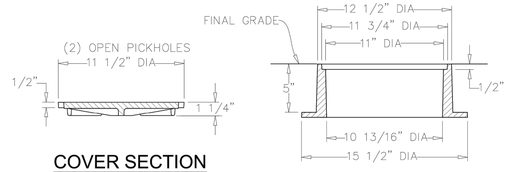
REFERENCES
DETAIL 520S-9-SM
DETAIL 520S-1-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WATER SERVICE & WASTEWATER SERVICE CONNECTION AT SAME LOT LINE	
RECORD COPY SIGNED BY	6/1/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01A-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



PLAN VIEW

COVER BACK

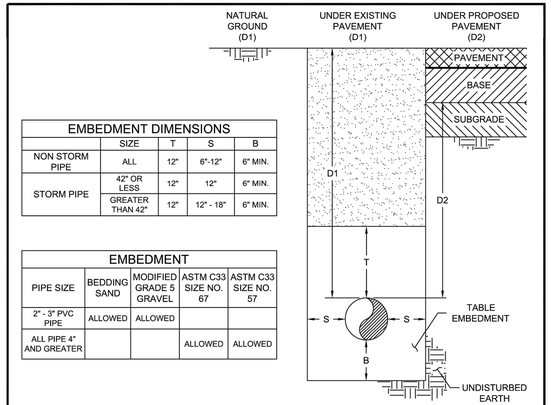


COVER SECTION
SECTION A-A

RING SECTION
SECTION A-A

NOTES:
1. COVER SHALL BE EAST JORDAN IRON WORKS OR APPROVED EQUIVALENT.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	CLEANOUT RING AND COVER	
RECORD COPY SIGNED BY	6/30/2014	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	503S-7W-SM
LAURIE MOYER, P.E.	ADOPTED		N.T.S. STANDARD DETAIL



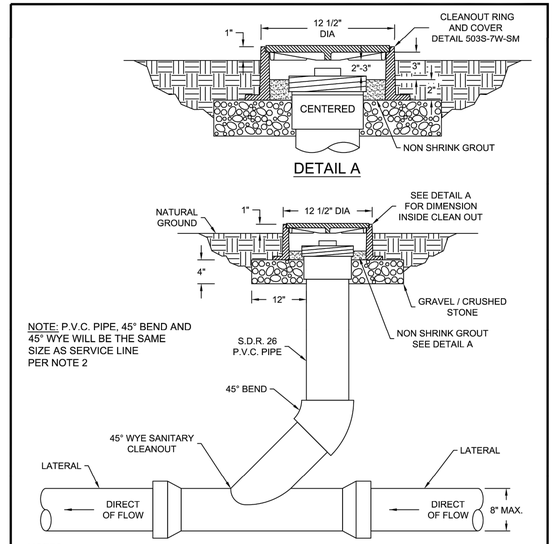
EMBEDMENT DIMENSIONS				
	SIZE	T	S	B
NON STORM PIPE	ALL	12"	6"-12"	6" MIN.
STORM PIPE	42" OR LESS	12"	12"	6" MIN.
	GREATER THAN 42"	12"	12" - 18"	6" MIN.

EMBEDMENT				
PIPE SIZE	BEDDING SAND	MODIFIED GRADE 5 GRAVEL	ASTM C33 SIZE NO. 67	ASTM C33 SIZE NO. 57
2" - 3" PVC PIPE	ALLOWED	ALLOWED		
ALL PIPE 4" AND GREATER			ALLOWED	ALLOWED

MINIMUM DEPTH OF COVER					
PIPE TYPE	SIZE	(D1) UNDER PAVEMENT	(D1) NATURAL GROUND	(D1) LESS THAN 3' OF COVER	(D2 - NOTE 2) UNDER PROPOSED ROAD
WATER	12" OR LESS	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL	36" BELOW BASE
	16" OR GREATER	48" MIN.	48" MIN.	NOT ALLOWED	48" BELOW BASE
WASTEWATER	ALL	60" MIN.	36" MIN.	DUCTILE IRON WILL BE USED. FLOWABLE FILL DETAIL WHERE EROSION MAY OCCUR	48" MIN. BELOW BASE
RECLAIMED WATER	ALL	48" MIN.	36" MIN.	24" MIN. AND USE CONCRETE FLOWABLE FILL DETAIL	36" MIN. BELOW BASE
STORM	ALL	MANUFACTURER'S SPECIFICATION MINIMUM AND MAXIMUM DEPTH OF COVER WILL BE USED FOR STORM PIPES			

NOTES:
1. ALL MEASUREMENTS ARE FROM OUTSIDE PIPE DIAMETER.
2. FOR TABLE "MINIMUM DEPTH OF COVER" COLUMN "UNDER PROPOSED ROAD" IF D1 FROM COLUMN "UNDER PAVEMENT" PLACES THE PIPE LOWER THAN D2. THEN D1 FROM "UNDER PAVEMENT" WILL BE USED FOR MINIMUM DEPTH OF COVER.
3. REFERENCE APPROPRIATE 510 PIPE TRENCH DETAILS FOR PAYMENT LIMITS. THIS DETAIL IS FOR DIMENSIONAL PURPOSES ONLY.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	UTILITY TRENCH DIMENSIONS	
RECORD COPY SIGNED BY	1/23/2018	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 510S-TD-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



DETAIL A

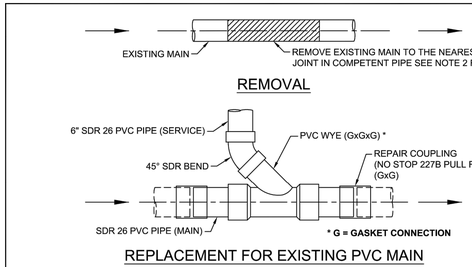
NOTE: P.V.C. PIPE, 45° BEND AND 45° WYE WILL BE THE SAME SIZE AS SERVICE LINE PER NOTE 2

NOTES:

1. THIS DETAIL IS NOT FOR ANY LOCATION THAT WILL HAVE TRAFFIC LOADS.
2. THIS STANDARD IS ONLY FOR LATERALS 8" OR LESS AND ALL FITTING AND PIPE FOR CLEANOUT WILL BE THE SAME SIZE AS LATERAL.
3. TRENCH SHALL BE COMPACTED AND RESTORED AS PER STANDARD DETAIL 510S-S&L-SM.
4. CLEAN OUT WILL BE LOCATED IN R.O.W. OR WASTEWATER EASEMENT.

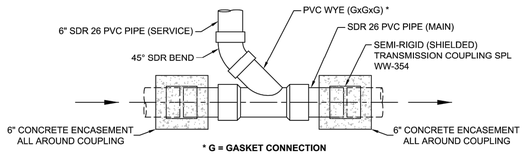
REFERENCES
DETAIL 503S-7W-SM
DETAIL 510S-S&L-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WASTEWATER CLEANOUT	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-4A-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1

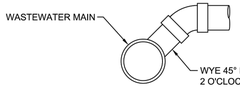


REMOVAL

REPLACEMENT FOR EXISTING PVC MAIN



REPLACEMENT FOR EXISTING CONCRETE, CLAY, AND AC MAIN

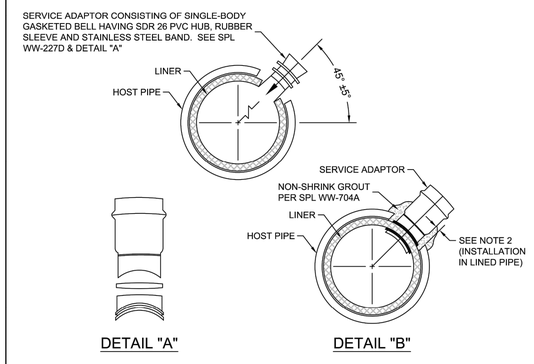


SERVICE LINE TO PROPOSED PVC MAIN

NOTES:

1. ALL 45° BENDS AND SANITARY WYE'S WILL BE ROTATED TO WHERE THE BRANCH IS AT 2 O'CLOCK TO THE MAIN. BACKFILL PER 510S-S&L-SM
2. AC PIPE HAS TO BE REMOVED TO THE NEAREST JOINT BEYOND COMPETENT PIPE.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WASTEWATER CONNECTION ON EXISTING MAIN	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01B-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2



DETAIL "A"

DETAIL "B"

INSTALLATION IN LINED PIPE:

1. MARK LOCATION OF TAP.
2. BREAK & REMOVE HOST PIPE SO THAT OPENING IS AT LEAST 2" BUT NO MORE THAN 3" WIDER THAN DIAMETER OF THE SERVICE ADAPTOR.
3. DO NOT DAMAGE LINER.
4. CORE HOLE THROUGH LINER USING ADAPTOR MANUFACTURER RECOMMENDED BIT.
5. INSTALL SERVICE ADAPTOR.
6. HOLES CUT IN HOST PIPE SHALL BE PACKED WITH NON-SHRINK GROUT (SPL WW-704A). SEE DETAIL "B"

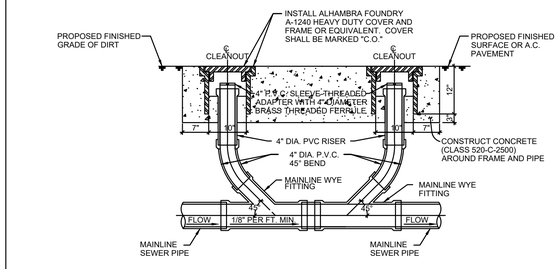
NOTES:

1. USE ONLY TO TAP EXISTING LINED PIPE OR EXISTING TRANSITION MAIN..
2. THE EDGE OF THE CORE HOLE MUST BE AT LEAST 3' FROM THE ENDS OF THE PIPE, ANY OTHER CORE SERVICE CONNECTIONS, AND ANY FITTINGS.

6" WASTEWATER CONNECTION TO EXISTING LINED MAIN OR EXISTING TRUNK MAIN

REFERENCES
DETAIL 510S-S&L-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WASTEWATER CONNECTION ON EXISTING MAIN	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01B-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2



SANITARY SEWER DOUBLE CLEAN-OUT
N.T.S.

NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY

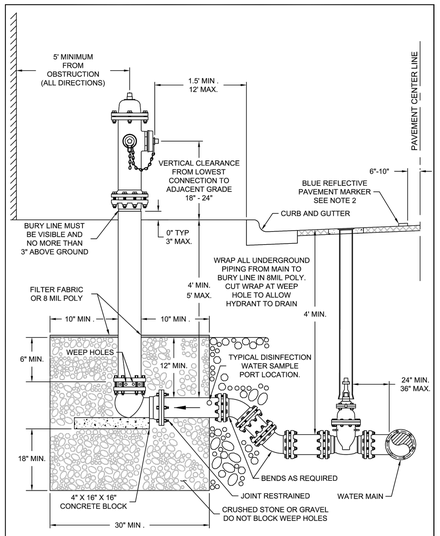
STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

UTILITY DETAILS-WASTEWATER
CAR WASH & GAS STATION
IH 35 & CHISOS
CITY OF SAN MARCOS
HAYS COUNTY, TEXAS 78666
LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

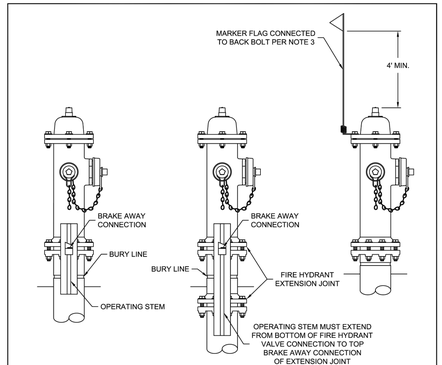
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Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103–20	C-9.1

TX. P.E. FIRM #11525



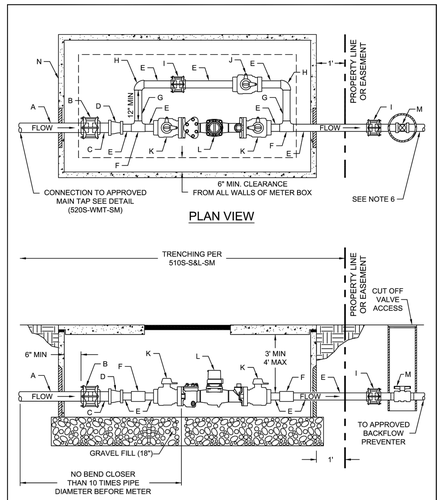
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD FIRE HYDRANT	
RECORD COPY SIGNED BY	2/15/2019	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-17-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2



NOTES:
1. PUBLIC HYDRANTS SHALL BE FACTORY PAINTED WITH BRIGHT ALUMINUM BASED SILVER PAINT AND PRIVATE HYDRANTS SHALL BE PAINTED RED.
2. A BLUE REFLECTIVE PAVEMENT MARKER MUST BE PLACED WITH EVERY FIRE HYDRANT ADJACENT TO A ROADWAY 6"-10" OFF CENTER LINE OF ROAD ON FIRE HYDRANT SIDE.
3. FIRE HYDRANTS OUTSIDE ROW SHALL HAVE MARKING FLAGS IN RURAL AREAS.
4. FIRE HYDRANT MUST GO ON PAVEMENT SIDE OF FENCE, OR FENCE MUST BE REBUILT AROUND FIRE HYDRANT TO ALLOW ACCESS FROM PAVEMENT TO FIRE HYDRANT.
5. FIRE HYDRANT MAY ONLY MINIMALLY OBSTRUCT SIDEWALK AT EITHER EDGE
6. NO OBJECT THAT WILL OBSTRUCT MAINTENANCE OR USE OF THE FIRE HYDRANT WILL BE LOCATED WITH IN 5 FEET OF THE FIRE HYDRANT INCLUDING BUT NOT LIMITED TO (TREES, FENCES, TELEPHONE POLE, DUMPSTER, PERMANENT/NONPERMANENT STRUCTURES,...ETC.).
7. FIRE HYDRANT ASSEMBLY MUST BE PER CURRENT CITY OF SAN MARCOS STANDARD PRODUCT LIST.

REFERENCES
DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	STANDARD FIRE HYDRANT	
RECORD COPY SIGNED BY	2/15/2019	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-17-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2



PLAN VIEW

PROFILE VIEW

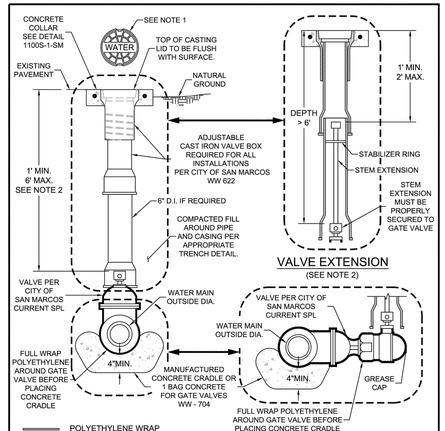
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	1.5" DOMESTIC METER SERVICE CONNECTION WITH BYPASS	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-13.3-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

MATERIALS		
LABEL	ITEM	SIZE
A	SUPPLY PIPE SCH. 80 FULLY RESTRAINED PER STANDARD PRODUCT LIST NO. WW-587	2"
B	RESTRAINT DRESSING COUPLINGS - MAXI-GRIP OR APPROVED EQUIVALENT PER STANDARD PRODUCT LIST NO. WW-587B	2"
C	BRASS NIPPLES-THREADED X THREADED	2"
D	THREADED BRASS BELL REDUCER FEMALE BY FEMALE	2" X 1 1/2"
E	BRASS NIPPLES-THREADED X THREADED	1-1/2"
F	THREADED BRASS FEMALE/FEMALE TEE	1-1/2"
G	BRASS NIPPLE THREADED BY THREADED (MINIMUM LENGTH OF 12")	1-1/2"
H	BRASS 90° BEND FULLY RESTRAINED-THREADED	1-1/2"
I	DRESSING COUPLINGS - SMITH BLAIR 411-00019001-003 OR APPROVED EQUIVALENT	1-1/2"
J	THREADED BRONZE BALL VALVE WITH LOCK WINGS FEMALE BY FEMALE PER STANDARD PRODUCT LIST NO. WW-68	1-1/2"
K	THREADED BRONZE BALL VALVE WITH LOCK WINGS FEMALE BY FLANGE PER STANDARD PRODUCT LIST NO. WW-68	1-1/2"
L	WATER METER PER STANDARD PRODUCT LIST NO. WW-144 WATER METERS	1-1/2"
M	CUSTOMER CUT OFF VALVE	1-1/2"
N	METER VAULTS PER STANDARD PRODUCTS LIST WW-298	5' X 5'

NOTES:
1. TOP OF METER VAULT SHALL BE 1" ABOVE GRADE AFTER REVEGETATION OR FLUSH WITH PAVEMENT SURFACE. METER VAULT WILL BE LOCATED BEHIND BACK CURB, OUT OF SIDEWALK OR TRAFFIC LOADED AREA.
2. FOR PIPES AND FITTINGS OUTSIDE THE METER VAULT SHALL BE EMBEDDED AND BACKFILLED PER DETAIL 510S-S&L-SM WITHIN THE ROW OR EASEMENT.
3. WATER METER WILL BE HORIZONTALLY CENTERED WITH THE METER VAULT.
4. TAP TO CITY WATER LINE WILL BE PER CITY DETAIL 510S-WMT-SM WITH A 2" TAP TO THE MAIN.
5. IF THE METER VAULT IS SET AFTER THE METER IS INSTALLED, SIDE NOTCHES IN THE VAULT TO BE FILLED WITH MORTAR AFTER INSTALLATION OF PIPE.
6. TO APPROVED BACKFLOW PREVENTER WILL BE INSTALLED AFTER CUSTOMER CUT OFF VALVE BEHIND PROPERTY LINE OR EASEMENT.
7. PIPES AND FITTINGS TO BE AS SHOWN PER DETAIL.
8. FOR APPROVED METER TYPE CALL THE WATER & WASTEWATER UTILITIES DEPT. AT (512)393-8010.
9. ALL FITTINGS BETWEEN RESILIENT WEDGE GATE VALVE AND VAULT SHALL BE C.I. AND RESTRAINED.
10. IF METER VAULT HAS CONCRETE BASE A DRAIN MINIMUM 6" DIAMETER WILL BE INSTALLED AND BASE WILL BE GRADED TO DRAIN TO THE DRAIN.

REFERENCES
DETAIL 510S-S&L-SM
DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	1.5" DOMESTIC METER SERVICE CONNECTION WITH BYPASS	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-13.3-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2



VERTICAL VALVE (STANDARD)

HORIZONTAL VALVE

NOTE:
1. LID MUST SAY "WATER" FOR A WATERLINE, "SEWER" FOR NONPOTABLE LINES OR "RECLAIM" FOR RECLAIMED WATER. REFER TO SPL WW 622.
2. IF DEPTH EXCEEDS 6', A SINGLE VALVE EXTENSION IS REQUIRED. VALVE EXTENSION CAN NOT BE STACKED.

REFERENCES
DETAIL 1100S-1-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	TYPICAL GATE VALVE 2" - 24"	
RECORD COPY SIGNED BY	2/15/2019	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511S-7-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1

PLAN VIEW

PROFILE VIEW

METER INSIDE EASEMENT

METER INSIDE ROW / PROPERTY LINE

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2020	5/8", 3/4" & 1" SINGLE METER SERVICE CONNECTION (IRRIGATION OR DOMESTIC)	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-11-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

MATERIALS				
LABEL	ITEMS	METER SIZE		
		5/8"	3/4"	1"
* A	TUBING PER STANDARD PRODUCT LIST - TYPE K COPPER WW-613 OR POLYETHYLENE WW-65	1"	1"	1"
B	APPROVED ANGLE METER STOP WITH PADLOCK WING. (FORD TYPE Q COMPRESSION FITTING OR APPROVED EQUIVALENT.) PER STANDARD PRODUCT LIST NO. WW-68	5/8"	3/4"	1"
C	WATER METER PER STANDARD PRODUCT LIST NO. WW-144	5/8"	3/4"	1"
D	WATER METER COUPLING - CONNECTION SWIVEL NUT	5/8"	3/4"	1"
E	CUSTOMER YARD PIPE - AS SPECIFIED	REQUIRED		
F	CUSTOMER CUT - OFF VALVE IN VALVE BOX AND LID	REQUIRED		
G	METER BOX AND LID PER STANDARD PRODUCT LIST NO. WW-145A HDPE METER BOXES	REQUIRED		
H	6" COMPACTED SAND	REQUIRED		

* ALL FITTING CONNECTED TO POLYETHYLENE PIPE WILL REQUIRE A STAINLESS STEEL INSERT.

NOTES:
1. TOP OF METER BOX SHALL BE 1" ABOVE GRADE AFTER REVEGETATION OR FLUSH WITH PAVEMENT SURFACE. METER BOX WILL BE LOCATED BEHIND BACK CURB, OUT OF SIDEWALK OR TRAFFIC LOADED AREA.
2. FOR PIPES AND FITTINGS OUTSIDE THE METER BOX SHALL BE EMBEDDED AND BACKFILLED PER DETAIL 510S-S&L-SM WITHIN THE ROW OR EASEMENT.
3. WATER METER WILL BE HORIZONTALLY CENTERED WITH THE METER BOX.
4. TAP TO CITY WATER LINE WILL BE PER CITY DETAIL 510S-WMT-SM WITH A 1" TAP TO THE MAIN.
5. CUT-OFF VALVE AND CONNECTION TO YARD PIPING TO BE SUBMITTED FOR APPROVAL.
6. METERS TO BE SUPPLIED BY CONTRACTOR FOR COMMERCIAL ACCOUNTS.
7. ALL PARTS WILL BE PER THE CURRENT CITY OF SAN MARCOS STANDARD PRODUCTS LIST.
8. SERVICE LINE TO APPROVED BACKFLOW PREVENTER FOR NONE SINGLE FAMILY RESIDENTIAL LOTS WHEN REQUIRED.

REFERENCES
DETAIL 510S-S&L-SM
DETAIL 520S-WMT-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2020	5/8", 3/4" & 1" SINGLE METER SERVICE CONNECTION (IRRIGATION OR DOMESTIC)	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-11-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2020	WATER MAIN TAP	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-WMT-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 2

1 INCH TAP MATERIAL LIST		
LABEL	ITEM	SIZE
*A	APPROVED TAPPING SADDLE PER SPL NO. WW-264/WW-256	REQUIRED
B	CORPORATION STOP. FORD TYPE Q COMPRESSION FITTING OR APPROVED EQUIVALENT PER SPL NO. WW-68	1"
**C	TUBING PER SPL NO. TYPE K COPPER WW-613 OR POLYETHYLENE WW-65	1"

* SERVICE SADDLES SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
** ALL FITTING CONNECTED TO POLYETHYLENE PIPE WILL REQUIRE A STAINLESS STEEL INSERT.

2 INCH TAP MATERIAL LIST		
LABEL	ITEM	SIZE
A	APPROVED TAPPING SADDLE PER SPL NO. WW-264	REQUIRED
B	GALVANIZED NIPPLE-THREADED	2"
C	TAPPING VALVE (RESILIENT WEDGE GATE, IRON BODY FEMALE/FEMALE) WITH VALVE BOX DETAIL 511S-7SM	2"
D	GALVANIZED NIPPLE-THREADED X THREADED	2"
E	RESTRAINT DRESSING COUPLINGS - MAXI-GRIP OR APPROVED EQUIVALENT PER SPL NO. WW-587B	2"
F	SUPPLY PIPE SCH. 80 FULLY RESTRAINED PER SPL NO. WW-587	2"
G	DUCTILE IRON 90° BEND - HARCO-KNUCKLE JOINT RESTRAINT, OR APPROVED EQUIVALENT PER SPL NO. WW-587B	2"

4 INCH AND LARGER TAP MATERIAL LIST						
LABEL	ITEM	SERVICE SIZE				
		3"	4"	6"	8"	10"
A	APPROVED TAPPING SLEEVE PER SPL NO. WW-244	REQUIRED				
B	TAPPING VALVE (RESILIENT WEDGE GATE, IRON BODY M.J. X M.J.) WITH VALVE BOX DETAIL 511S-7-SM	4"	4"	6"	8"	10"
C	SUPPLY PIPE C900 PER SPL NO. WW-308A OR DUCTILE IRON PER SPL NO. WW-27 FULLY RESTRAINED	4"	4"	6"	8"	10"
*D	DUCTILE IRON 90° BEND - MEGALUG RESTRAINT, OR APPROVED EQUIVALENT PER SPL NO. WW-27B AND NO. WW-27A	4"	4"	6"	8"	10"
E	MECHANICAL JOINT ADAPTOR PER SPL NO. WW-27B	4"	N/A			
F	CAST IRON MECHANICAL JOINT REDUCER PER SPL NO. WW-27B	4"x3"	N/A			
G	PVC SUPPLY PIPE SCH. 80 FULLY RESTRAINED PER SPL NO. WW-587	3"	N/A			

* WHEN CONDITIONS ALLOW 45° BENDS ARE PREFERRED OVER 90° BENDS

NOTES:
1. MAIN SIZE CAN NOT BE LESS THAN OR EQUAL TO TAP. TEE PER SPL NO. WW-27B MAY BE USED WITH ENGINEERING DEPARTMENT APPROVAL FOR SIZE ON SIZE CONNECTION.
2. BACKFILL AND EMBEDMENT WILL BE PER CITY DETAIL 510-S&L-SM.
3. 3" SERVICE AND FIRE LINES WILL USE A 4" TAP AND HAVE A REDUCER TO A 3" LINE AFTER FIRST BEND LEADING TO A HORIZONTALLY LEVELED LINE.
4. ALL PARTS WILL BE PER THE CURRENT CITY OF SAN MARCOS STANDARD PRODUCTS LIST.
5. WHEN A TAP IS PROPOSED ON AN EXISTING ASBESTOS CEMENT (AC) PIPE THE CONTRACTOR WILL REPLACE THE AC PIPE SEGMENT WITH AN APPROVED PVC PIPE PER CITY STANDARD PRODUCT LIST (SPL). NEW PIPE WILL BE CONNECTED TO THE EXISTING AC PIPE WITH A WIDE RANGE COUPLING ADAPTOR PER CITY SPL.

REFERENCES
DETAIL 510S-S&L-SM
DETAIL 511S-7-SM

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2021	WATER MAIN TAP	
RECORD COPY SIGNED BY	1/1/2020	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-WMT-SM
LAURIE MOYER, P.E.	ADOPTED		2 OF 2

NOTES:
1. FOR SERVICE LINE 8" OR GREATER, SAMPLE TEE MUST BE 2" LARGER THAN SERVICE PIPE SIZE.
2. ALL CT ADAPTORS NEED TO BE CONCRETE ENCASED.
3. THERE WILL BE NO WASTEWATER CONNECTION BETWEEN THE GREASE TRAP AND WASTEWATER SAMPLE PORT.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	WASTEWATER SAMPLE PORT	
RECORD COPY SIGNED BY	6/2/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-4B-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1

UTILITY DETAILS-WATER

CAR WASH & GAS STATION

IH 35 & CHISOS

CITY OF SAN MARCOS

HAYS COUNTY, TEXAS 78666

LOT 1, BLOKC 2, THERMON INDUSTRIAL PARK

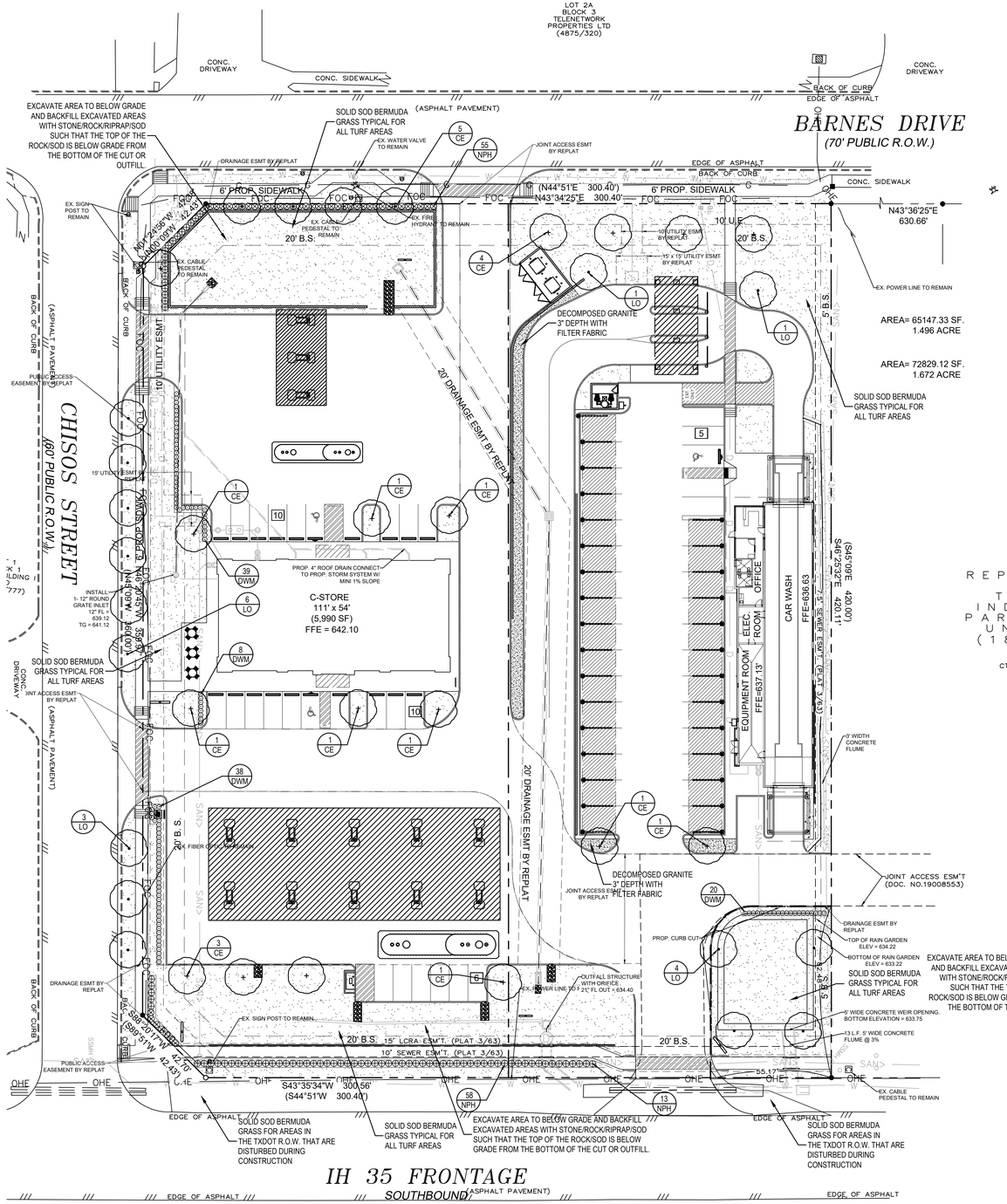
NO.	DATE	DESCRIPTION	BY
3	10/27/2021	2nd WWP2 SUBMITTAL	AY
4	03/16/2022	4th SPP SUBMITTAL	AY
5	05/19/2022	3rd WPP2 SUBMITTAL	AY
6	05/27/2022	5th SPP SUBMITTAL	AY
7	08/05/2022	3RD TXDOT SUBMITTAL	AY
8	08/18/2022	4TH WPP2 SUBMITTAL	AY
9	11/03/2022	5TH WPP2 SUBMITTAL	AY

STATE OF TEXAS
PIK HAU YEOH
121532
LICENSED
PROFESSIONAL ENGINEER
11/03/2022

TRIANGLE ENGINEERING LLC
T: 469.331.8566 I F: 469.213.7145 I E: info@triangle-engr.com
W: triangle-engr.com I O: 1784 McDermott Drive, Suite 110, Allen, TX 75013
Planning | Civil Engineering | Construction Management

P.E.	DES.	DATE	SCALE	PROJECT NO.	SHEET NO.
AY	ZC	02/01/2021	SEE SCALE BAR	103–20	C-9.2

TX. P.E. FIRM #11525



GENERAL LAWN NOTES

1. FINE GRADE AREAS TO ACHIEVE FINAL CONTOURS INDICATED ON CIVIL PLANS.
2. ADJUST CONTOURS TO ACHIEVE POSITIVE DRAINAGE AWAY FROM BUILDINGS. PROVIDE UNIFORM ROUNDING AT TOP AND BOTTOM OF SLOPES AND OTHER BREAKS IN GRADE. CORRECT IRREGULARITIES AND AREAS WHERE WATER MAY STAND.
3. ALL LAWN AREAS TO RECEIVE SOLID SOD SHALL BE LEFT IN A MAXIMUM OF 1" BELOW FINAL FINISH GRADE. CONTRACTOR TO COORDINATE OPERATIONS WITH ON-SITE CONSTRUCTION MANAGER.
4. IMPORTED TOPSOIL SHALL BE NATURAL, FRIABLE SOIL FROM THE REGION, KNOWN AS BOTTOM AND SOIL, FREE FROM LUMPS, CLAY, TOXIC SUBSTANCES, ROOTS, DEBRIS, VEGETATION, STONES, CONTAINING NO SALT AND BLACK TO BROWN IN COLOR.
5. *ALL LAWN AREAS TO BE FINE GRADED, IRRIGATION TRENCHES COMPLETELY SETTLED, AND FINISH GRADE APPROVED BY THE OWNER'S CONSTRUCTION MANAGER OR ARCHITECT PRIOR TO INSTALLATION.*
6. *ALL ROCKS 3/4" DIAMETER AND LARGER, DIRT CLODS, STICKS, CONCRETE SPOILS, ETC. SHALL BE REMOVED PRIOR TO PLACING TOPSOIL AND ANY LAWN INSTALLATION*
7. CONTRACTOR SHALL PROVIDE (1") ONE INCH OF IMPORTED TOPSOIL ON ALL AREAS TO RECEIVE LAWN.

LANDSCAPE NOTES

1. CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED SITE ELEMENTS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES. SURVEY DATA OF EXISTING CONDITIONS WAS SUPPLIED BY OTHERS.
2. CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES AND NOTIFY ARCHITECT OF ANY CONFLICTS. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING IN THE VICINITY OF UNDERGROUND UTILITIES.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED LANDSCAPE AND IRRIGATION PERMITS.
4. CONTRACTOR TO PROVIDE A MINIMUM 2% SLOPE AWAY FROM ALL STRUCTURES.
5. ALL PLANTING BEDS AND LAWN AREAS TO BE SEPARATED BY STEEL EDGING. NO STEEL TO BE INSTALLED ADJACENT TO SIDEWALKS OR CURBS.
6. ALL LANDSCAPE AREAS TO BE 100% IRRIGATED WITH AN UNDERGROUND AUTOMATIC IRRIGATION SYSTEM AND SHALL INCLUDE RAIN AND FREEZE SENSORS.
7. ALL LAWN AREAS TO BE SOLID SOD BERMUDAGRASS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

SOLID SOD NOTES

1. FINE GRADE AREAS TO ACHIEVE FINAL CONTOURS INDICATED. LEAVE AREAS TO RECEIVE TOPSOIL 3" BELOW FINAL DESIRED GRADE IN PLANTING AREAS AND 1" BELOW FINAL GRADE IN TURF AREAS.
2. ADJUST CONTOURS TO ACHIEVE POSITIVE DRAINAGE AWAY FROM BUILDINGS. PROVIDE UNIFORM ROUNDING AT TOP AND BOTTOM OF SLOPES AND OTHER BREAKS IN GRADE. CORRECT IRREGULARITIES AND AREAS WHERE WATER MAY STAND.
3. ALL LAWN AREAS TO RECEIVE SOLID SOD SHALL BE LEFT IN A MAXIMUM OF 1" BELOW FINAL FINISH GRADE. CONTRACTOR TO COORDINATE OPERATIONS WITH ON-SITE CONSTRUCTION MANAGER.
4. CONTRACTOR TO COORDINATE WITH ON-SITE CONSTRUCTION MANAGER FOR AVAILABILITY OF EXISTING TOPSOIL.
5. PLANT SOD BY HAND TO COVER INDICATED AREA COMPLETELY. INSURE EDGES OF SOD ARE TOUCHING. TOP DRESS JOINTS BY HAND WITH TOPSOIL TO FILL VOIDS.
6. ROLL GRASS AREAS TO ACHIEVE A SMOOTH, EVEN SURFACE, FREE FROM UNNATURAL UNDULATIONS.
7. WATER SOD THOROUGHLY AS SOD OPERATION PROGRESSES.
8. CONTRACTOR SHALL MAINTAIN ALL LAWN AREAS UNTIL FINAL ACCEPTANCE. THIS SHALL INCLUDE, BUT NOT LIMITED TO; MOWING, WATERING, WEEDING, CULTIVATING, CLEANING AND REPLACING DEAD OR BARE AREAS TO KEEP PLANTS IN A VIGOROUS, HEALTHY CONDITION.
9. CONTRACTOR SHALL GUARANTEE ESTABLISHMENT OF AN ACCEPTABLE TURF AREA AND SHALL PROVIDE REPLACEMENT FROM LOCAL SUPPLY IF NECESSARY.

LANDSCAPE TABULATIONS: C-STORE

REQUIREMENT: 10% OF THE SITE AREA TO BE LANDSCAPE. ONE TREE AND THREE SHRUBS REQUIRED PER 1,000 S.F. OF REQUIRED LANDSCAPE AREA. (SITE AREA 72,828 S.F.)

REQUIRED	PROVIDED
7,282 S.F.	21,238 S.F.
7- TREES	25- TREES
22- SHRUBS	213- SHRUBS

STREET TREES- 1 TREE PER 40 L.F.

BARNES- 155 L.F.

REQUIRED	PROVIDED
4- TREES	4- TREES

CHISOS- 420 L.F.

REQUIRED	PROVIDED
10- TREES	10- TREES

IH 35- 175 L.F.

REQUIRED	PROVIDED
4 TREES	4 TREES

LANDSCAPE TABULATIONS: CAR WASH

REQUIREMENT: 10% OF THE SITE AREA TO BE LANDSCAPE. ONE TREE AND THREE SHRUBS REQUIRED PER 1,000 S.F. OF REQUIRED LANDSCAPE AREA. (SITE AREA 65,147 S.F.)

REQUIRED	PROVIDED
6,514 S.F.	20,049 S.F.
7- TREES	15- TREES
20- SHRUBS	83- SHRUBS

STREET TREES- 1 TREE PER 40 L.F.

BARNES- 155 L.F.

REQUIRED	PROVIDED
4- TREES	4- TREES

IH 35- 155 L.F.

REQUIRED	PROVIDED
4- TREES	4- TREES

PLANT MATERIAL SCHEDULE- C-STORE

TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
TREES					
CE	13	Cedar Elm	*Ulmus crassifolia*	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
LO	12	Live Oak	*Quercus virginiana*	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
SHRUBS					
DWM	92	Dwarf Wax Myrtle	*Myrica pusilla*	5 gal.	container, 20" ht., 20" spread
NPH	121	Needlepoint Holly	*Ilex comuta 'Needlepoint'*	5 gal.	container, 24" ht., 20" spread
GROUNDCOVERS					
		'419' Bermudagrass	*Cynodon dactylon '419'*		solid sod refer to notes

NOTE: Plant list is an aid to bidders only. Contractor shall verify all quantities on plan. All heights and spreads are minimums. All plant material shall meet or exceed remarks as indicated. All trees to have straight trunks and be matching within varieties.

PLANT MATERIAL SCHEDULE- CAR WASH

TYPE	QTY	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
TREES					
CE	9	Cedar Elm	*Ulmus crassifolia*	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
LO	6	Live Oak	*Quercus virginiana*	3" cal.	container, 12' ht., 5' spread, 6' clear straight trunk
SHRUBS					
DWM	20	Dwarf Wax Myrtle	*Myrica pusilla*	5 gal.	container, 20" ht., 20" spread
NPH	63	Needlepoint Holly	*Ilex comuta 'Needlepoint'*	5 gal.	container, 24" ht., 20" spread
GROUNDCOVERS					
		'419' Bermudagrass	*Cynodon dactylon '419'*		solid sod refer to notes

NOTE: Plant list is an aid to bidders only. Contractor shall verify all quantities on plan. All heights and spreads are minimums. All plant material shall meet or exceed remarks as indicated. All trees to have straight trunks and be matching within varieties.

1. UNLESS PAVEMENT IS INSTALLED, STONE, ROCK RIPRAP, SOD OR ANOTHER TYPE OF FLOW DISSIPATION IS REQUIRED AT ALL CURB CUTS AND OTHER DISCHARGE POINTS, SURROUNDING ALL GRATE INLETS, AND UNDER ALL OPEN DOWNSPOUTS, RAIN CHAINS, ROOF DRAINS / LARGE DOWNSPOUTS NOZZELS (AKA COW TONGUES), ETC. DECOMPOSED GRANITE, PEA GRAVEL OR SMALLER, RUBBER OR LANDSCAPE MULCH, PINE BARK, PECAN SHELLS, WOOD CHIPS AND ANY OTHER MATERIAL THAT IS EASILY DISPLACED DURING RAIN EVENTS ARE NOT ALLOWED IN THESE LOCATIONS.

01 LANDSCAPE PLAN
SCALE 1"=30'-0"
0 15 30 60

LANDSCAPE ARCHITECT
STUDIO GREEN SPOT, INC.
1784 W. McDERMOTT DR.
SUITE 110
ALLEN, TEXAS 75013
(469) 369-4448
CHRIS@STUDIOGREENSPOT.COM

REGISTERED LANDSCAPE ARCHITECT
CHRIS TROMBLEY
2042
STATE OF TEXAS
01.10.2023

C-STORE & CARWASH

Chisos St & Barnes Dr
San Marcos, TX 78666

ISSUE:
FOR APPROVAL 02.12.2021
CITY COMMENTS 06.17.2021
CITY COMMENTS 10.27.2021
CITY COMMENTS 05.26.2022
CITY COMMENTS 01.10.2023

DATE:
01.10.2023

SHEET NAME:
LANDSCAPE PLAN

SHEET NUMBER:
L.1

SECTION 02900 - LANDSCAPE

PART 1 - GENERAL

1.1 REFERENCED DOCUMENTS

Refer to bidding requirements, special provisions, and schedules for additional requirements.

1.2 DESCRIPTION OF WORK

Work included: Furnish all supervision, labor, materials, services, equipment and appliances required to complete the work covered in conjunction with the landscaping covered in these specifications and landscaping plans, including:

1. Planting (trees, shrubs, and grass)
2. Bed preparation and fertilization
3. Notification of sources
4. Water and Maintenance until final acceptance
5. Guarantee

1.3 REFERENCE STANDARDS

A. American Standard for Nursery Stock published by American Association of Nurserymen: 27 October 1980, Edition; by American National Standards Institute, Inc. (Z60.1) – plant material.

B. American Joint Committee on Horticultural Nomenclature: 1942 Edition of Standardized Plant Names.

C. Texas Association of Nurserymen, Grades and Standards.

D. Hortis Third, 1976 - Cornell University

1.4 NOTIFICATION OF SOURCES AND SUBMITTALS

A. The Contractor shall, within ten (10) days following acceptance of bid, notify the Architect/Owner of the sources of plant materials and bed preparation required for the project.

B. Samples: Provide representative quantities of sandy loam soil, mulch, bed mix material, gravel, and crushed stone. Samples shall be approved by Architect before use on project.

C. Product Data: Submit complete product data and specifications on all other specified materials.

D. Submit three representative samples of each variety of ornamental trees, shrubs, and groundcover plants for Architect's approval. When approved, tag, install, and maintain as representative samples for final installed plant materials.

E. File Certificates of Inspection of plant material by state, county, and federal authorities with Architect, if required.

F. Soil Analysis: Provide sandy loam soil analysis if requested by the Architect.

JOB CONDITIONS

A. General Contractor to complete the following punch list: Prior to Landscape Contractor initiating any portion of landscape installation. General Contractor shall leave planting bed areas three (3") inches below finish grade of sidewalks, drives and curbs as shown on the drawings. All lawn areas to receive solid sod shall be left one (1") inch below the finish grade of sidewalks, drives, and curbs. All construction debris shall be removed prior to Landscape Contractor beginning any work.

B. General Contractor shall provide topsoil as described in Section 02200 - Earthwork.

C. Storage of materials and equipment at the job site will be at the risk of the Landscape Contractor. The Owner cannot be held responsible for theft or damage.

1.6 MAINTENANCE AND GUARANTEE

A. Maintenance:

1. The Landscape Contractor will be held responsible for the maintenance of all work from the time of planting until final acceptance by the Owner. No trees, shrubs, groundcover or grass will be accepted unless they show a healthy growth and satisfactory foliage conditions.
2. Maintenance shall include watering of trees and plants, cultivation, weeding spraying, edging, pruning of trees, mowing of grass, cleaning up and all other work necessary of maintenance.
3. A written notice requesting final inspection and acceptance should be submitted to the Owner at least seven (7) days prior to completion. An on-site inspection by Owner and Landscape Contractor will be completed prior to written acceptance.
4. After final acceptance of installation, the Landscape Contractor will not be required to do any of the above listed work.

B. Guarantee:

1. Trees shall be guaranteed for a twelve (12) month period after acceptance. Shrubs and groundcover shall be guaranteed for twelve (12) months. The Contractor shall replace all dead materials as soon as weather permits and upon notification of the Owner. Plants, including trees, which have partially died so that shape, size, or symmetry has been damaged, shall be considered subject to replacement. In such cases, the opinion of the Owner shall be final.
   a. Plants used for replacement shall be of the same size and kind as those originally planted and shall be planted as originally specified. All work, including materials, labor and equipment used in replacements, shall carry a twelve (12) month guarantee. Any damage, including ruts in lawn or bed areas, incurred as a result of making replacements shall be immediately repaired.
   b. At the direction of the Owner, plants may be replaced at the start of the next year's planting season. In such cases, dead plants shall be removed from the premises immediately.
   c. When plant replacements are made, plants, soil mix, fertilizer and mulch are to be utilized as originally specified and reinspected for full compliance with Contract requirements. All replacements are to be included under "Work" of this section.

1.7 QUALITY ASSURANCE

A. General: Comply with applicable Federal, State, County and Local regulations governing landscape materials and work

B. Personnel: Employ only experienced personnel who are familiar with the required work. Provide full time supervision by a qualified foreman acceptable to Landscape Architect.

C. Selection of Plant Material:

1. Make contact with suppliers immediately upon obtaining notice of contract acceptance to select and book materials. Develop a program of maintenance (pruning and fertilization) which will insure the purchased materials will meet and/or exceed project specifications.
2. Landscape Architect will provide a key identifying each tree location on site. Written verification will be required to document material selection, source and delivery schedules to site.
3. Owner and/or Architect shall inspect all plant materials when reasonable at place of growth for compliance with requirements for genus, species, cultivar/variety, size and quality.
4. Owner and/or Architect retains the right to further inspect all plant material upon arrival at the site and during installation for size and condition of root balls, limbs, branching habit, insects, injuries, and latent defects.
5. Owner and/or Architect may reject unsatisfactory or defective material at any time during the process of work. Remove rejected materials from the site immediately. Plants damaged in transit or at job site shall be rejected.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Preparation:

1. Balled and Burlapped (B&B) Plants: Dig and prepare shipment in a manner that will not damage roots, branches, shape, and future development.
2. Container Grown Plants: Deliver plants in rigid container to hold ball shape and protect root mass.
3. The Owner agrees that for the guarantee to be effective, he will water plants at least twice a week during dry periods and cultivate beds once a month after final acceptance.
4. The above guarantee shall not apply where plants die after acceptance because of injury from storms, hail, freeze, insects, diseases, injury by humans, machines or theft.
5. Acceptance for all landscape work shall be given after final inspection by the Owner provided the job is in a completed, undamaged condition, and there is a stand of grass in all lawn areas. At this time, the Owner will assume maintenance on the accepted work.

C. Repairs: Any necessary repairs under the Guarantee must be made within ten (10) days after receiving notice, weather permitting, and in the event the Landscape Contractor does not make repairs accordingly, the Owner, without further notice to Contractor, may provide materials and men to make such repairs at the expense of the Landscape Contractor.

A. Delivery:

1. Deliver packaged materials in sealed containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
2. Deliver only plant materials that can be planted in one day unless adequate storage and watering facilities are available on job site.
3. Protect root balls by heeling in with sawdust or other approved moisture retaining material if not planted within 24 hours of delivery.
4. Protect plants during delivery to prevent damage to root balls or desiccation of leaves. Keep plants moist at all times. Cover all materials during transport.
5. Notify Architect of delivery schedule 72 hours in advance so plant material may be observed upon arrival at job site.
6. Remove rejected plant material immediately from site.
7. To avoid damage or stress, do not lift, move, adjust to plumb, or otherwise manipulate plants by trunk or stems.

PART 2 - PRODUCTS

2.1 PLANTS

A. General: Well-formed No. 1 grade or better nursery grown stock. Listed plant heights are from tops of root balls to nominal tops of plants. Plant spread refers to nominal outer width of the plant, not to the outer leaf tips. Plants will be individually approved by the Architect and his decision as to their acceptability shall be final.

B. Quantities: The drawings and specifications are complimentary. Anything called for on one and not the other is as binding as if shown and called for on both. The plant schedule is an aid to bidders only. Confirm all quantities on plan.

C. Quality and size: Plant materials shall conform to the size given on the plan, and shall be healthy, symmetrical, well-shaped, full branched, and well rooted. The plants shall be free from injurious insects, diseases, injuries to the bark or roots, broken branches, objectionable disfigurements, insect eggs and larvae and are to be of specimen quality.

D. Approval: All plant materials shall be subject to the approval of the Owner. All plants which are found unsuitable in growth, or in any unhealthy, badly shaped, or undersized condition, will be rejected by the Landscape Architect, either before or after planting, and shall be removed at the expense of the Landscape Contractor and replaced with acceptable plants as specified.

E. Trees shall be healthy, full-branched, well-shaped and shall meet the trunk diameter and height requirements of the plant schedule. Balls shall be firm, neat, slightly tapered, and well wrapped in burlap. Any tree loose in the ball or with broken ball at time of planting will be rejected. Balls shall be ten (10") inched in diameter for each one (1") inch of trunk diameter, Measured six (6") inched above ball.
Nomenclature conforms to the customary nursery usage: for clarification, the term "multi-trunk" defines a plant having three (3) or more trunks of nearly equal diameter.

F. Pruning: All pruning of trees and shrubs, as directed by the Landscape Architect, shall be executed by the Landscape Contractor at no additional cost to the Owner.

2.2 SOIL PREPARATION MATERIALS

A. Sandy Loam:

1. Friable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones and other extraneous material and reasonably free of weeds and foreign grasses. Loam containing Dallasgrass or Nutgrass shall be rejected.
2. Physical properties as follows:
   Clay – between 7-27 percent
   Silt – between 15-25 percent
   Sand – less than 52 percent
3. Organic matter shall be 3%-10% of total dry weight.
4. If requested, provide a certified soil analysis conducted by an approved soil testing laboratory verifying that sandy loam meets the above requirements.

B. Organic Material: Compost with a mixture of 80% vegetative matter and 20% animal waste. Ingredients should be a mix of course and fine textured material.

C. Premixed Bedding Soil as supplied by Vital Earth Resources, Gladewater, Texas; Professional Bedding Soil as supplied by Living Earth Technology, Dallas, Texas or Acid Gro Municipal Mix as supplied by Soil Building Systems, Dallas, Texas or approved equal.

D. Sharp Sand: Sharp sand must be free of seeds, soil particles and weeds.

E. Mulch: Double Shredded Hardwood Mulch, partially decomposed, dark brown. Living Earth Technologies or approved equal.

F. Organic Fertilizer: Fertilaid, Sustane, or Green Sense or equal as recommended for required applications. Fertilizer shall be delivered to the site in original unopened containers, each bearing the manufacturer's guaranteed statement of analysis.

A. Commercial Fertilizer: 10-20-10 or similar analysis. Nitrogen source to be a minimum 50% slow release organic Nitrogen (SCU or UF) with a minimum 8% sulphur and 4% iron, plus micronutrients.

B. Peat: Commercial sphagnum peat moss or partially decomposed shredded pine bark or other approved organic material.

2.3 MISCELLANEOUS MATERIALS

A. Steel Edging: Shall be Ryerson "Estate Curbing", 1/8" x 4" with stakes 4' on center.

B. Staking Material for Shade Trees:

1. Post: Studded T-Post, #1 Armco with anchor plate; 6'-0" length; paint green.
2. Wire: 12 gauge, single strand, galvanized wire.
3. Rubber hose: 2 ply, fiber reinforced hose, minimum ½ inch inside diameter. Color: Black.

C. Gravel: Washed native pea gravel, graded 1 in. to 1-1/2 in.

D. Filter Fabric: Mirafi 140N by Celanese Fibers Marketing Company, available at Loftland Co., (214) 631-5250 or approved equal.

PART 3 - EXECUTION

3.1 BED PREPARATION & FERTILIZATION

A. Landscape Contractor to inspect all existing conditions and report any deficiencies to the Owner.

B. All planting areas shall be conditioned as follows:

1. Prepare new planting beds by scraping away existing grass and weeds as necessary. Till existing soil to a depth of six (6") inches prior to placing compost and fertilizer. Apply fertilizer as per manufacturers recommendations. Add six (6") inches of compost and till into a depth of six (6") inches of the topsoil. Apply organic fertilizer such as Sustane or Green Sense at the rate of twenty (20) pounds per one thousand (1,000) square feet.
2. All planting areas shall receive a two (2") inch layer of specified mulch.
3. Backfill for tree pits shall be as follows: Use existing top soil on site (use imported topsoil as needed) free from large clumps, rocks, debris, caliche, subsoils, etc., placed in nine (9") inch layers and watered in thoroughly.

C. Grass Areas:

1. Areas to be Solid Sod Bermudagrass: Blocks of sod should be laid joint to joint, (staggered joints) after fertilizing the ground first. Roll grass areas to achieve a smooth, even surface. The joints between the blocks of sod should be filled with topsoil where they are evidently gaped open, then watered thoroughly.
2. Areas to be Hydromulch Common Bermudagrass: Hydromulch with bermudagrass seed at a rate of two (2) pounds per one thousand (1,000) square feet. Use a 4' x 8' batter board against the bed areas.

3.2 INSTALLATION

A. Maintenance of plant materials shall begin immediately after each plant is delivered to the site and shall continue until all construction has been satisfactorily accomplished.

B. Plant materials shall be delivered to the site only after the beds are prepared and area ready for planting. All shipments of nursery materials shall be thoroughly protected from the drying winds during transit. All plants which cannot be planted at once, after delivery to the site, shall be well protected against the possibility of drying by wind and sun. Balls of earth of B & B plants shall be kept covered with soil or other acceptable material. All plants remain the property of the Contractor until final acceptance.

C. Position the trees and shrubs in their intended location as per plan.

D. Notify the Landscape Architect for inspection and approval of all positioning of plant materials.

E. Excavate pits with vertical sides and horizontal bottom. Tree pits shall be large enough to permit handling and planting without injury to balls of earth or roots and shall be of such depth that, when planted and settled, the crown of the plant shall bear the same relationship to the finish grade as it did to soil surface in original place of growth.

F. Shrub and tree pits shall be no less than two (2') feet, twenty-four (24") inches, wider than the lateral dimension of earth ball and six (6") inches deeper than it's vertical dimension. Remove and haul from site all rocks and stones over one (1") inch in diameter. Plants should be thoroughly moist before removing containers.

G. Dig a wide, rough sided hole exactly the same depth as the height of the ball, especially at the surface of the ground. The sides of the hole should be rough and jagged, never slick or glazed.

H. Percolation Test: Fill the hole with water. If the water level does not percolate within 24 hours, the tree needs to move to another location or have drainage added. Install a PVC stand pipe per tree planting detail as approved by the Landscape Architect.

I. Backfill only with 5 parts existing soil or sandy loam and 1 part bed preparation. When the hole is dug in solid rock, topsoil from the same area should not be used. Carefully settle by watering to prevent air pockets. Remove the burlap from the top 1/3 of the ball, as well as all nylon, plastic string and wire mesh. Container trees will usually be pot bound, if so follow standard nursery practice of 'root scoring'.

J. Do not wrap trees.

K. Do not over prune.

L. Mulch the top of the ball. Do not plant grass all the way to the trunk of the tree. Leave the area above the top of the ball and mulch with at least two (2") inches of specified mulch.

M. All plant beds and trees to be mulched with a minimum settled thickness of two (2") inches over the entire bed or pit.

N. Obstruction below ground: In the event that rock, or underground construction work or obstructions are encountered in any plant pit excavation work to be done under this section, alternate locations may be selected by the Owner. Where locations cannot be changed, the obstructions shall be removed to a depth of not less than three (3') feet below grade and no less than six (6") inches below the bottom of ball when plant is properly set at the required grade. The work of this section shall include the removal from the site of such rock or underground obstructions encountered at the cost of the Landscape Contractor.

O. Trees and large shrubs shall be staked as site conditions require. Position stakes to secure tree against seasonal prevailing winds.

P. Pruning and Mulching: Pruning shall be directed by the Architect and shall be pruned in accordance with standard horticultural practice following Fine Pruning, Class I pruning standards provided by National Arborist Association.

1. Dead wood or suckers and broken badly bruised branches shall be removed. General tipping of the branched is not permitted. Do not cut terminal branches.
2. Pruning shall be done with clean, sharp tools.
3. Immediately after planting operations are completed, all tree pits shall be covered with a layer of organic material two (2") inches in depth. This limit of the organic material for trees shall be the diameter of the plant pit.

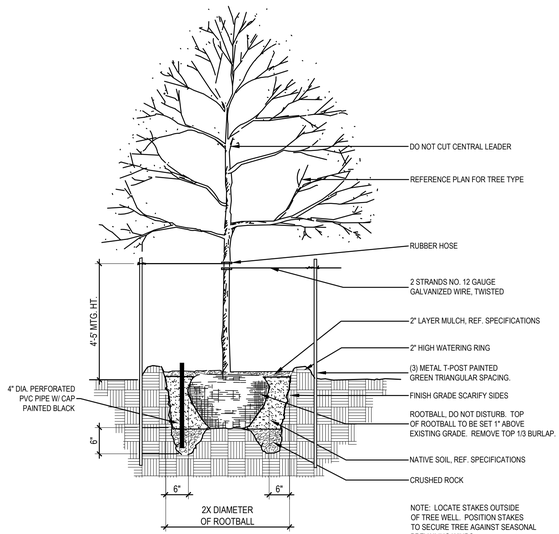
Q. Steel Curbing Installation:

1. Curbing shall be aligned as indicated on plans. Stake out limits of steel curbing and obtain Owners approval prior to installation.
2. All steel curbing shall be free of kinks and abrupt bends.
3. Top of curbing shall be 3/4" maximum height above grade.
1. Stakes are to be installed on the planting bed side of the curbing, as opposed to the grass side.
2. Do not install steel edging along sidewalks.
3. Cut steel edging at 45 degree angle where edging meets sidewalk.

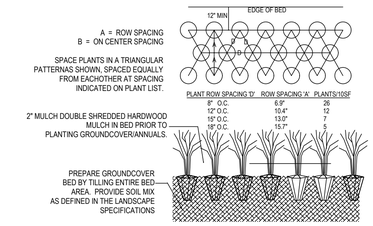
3.3 CLEANUP AND ACCEPTANCE

A. Cleanup: During the work, the premises shall be kept neat and orderly at all times. Storage areas for all materials shall be so organized that they, too, are neat and orderly. All trash and debris shall be removed from the site as work progresses. Keep paved areas clean by sweeping or hosing at end of each days work.

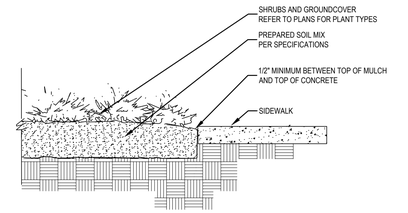
END OF SECTION



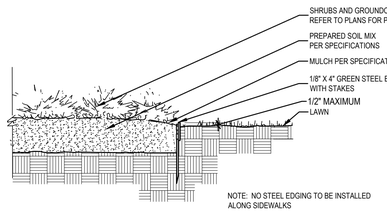
01 TREE PLANTING DETAIL — NOT TO SCALE



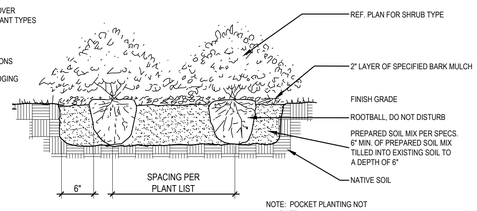
02 GROUNDCOVER PLANTING DETAIL — NOT TO SCALE



03 SIDEWALK / MULCH DETAIL — no steel along sidewalks — NOT TO SCALE



04 STEEL EDGING DETAIL — NOT TO SCALE



05 SHRUB PLANTING DETAIL — NOT TO SCALE

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LICENSED LANDSCAPE ARCHITECT — CHRIS TRONCHANO — 2042 — STATE OF TEXAS

02.12.2021

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Chisos St & Barnes Dr
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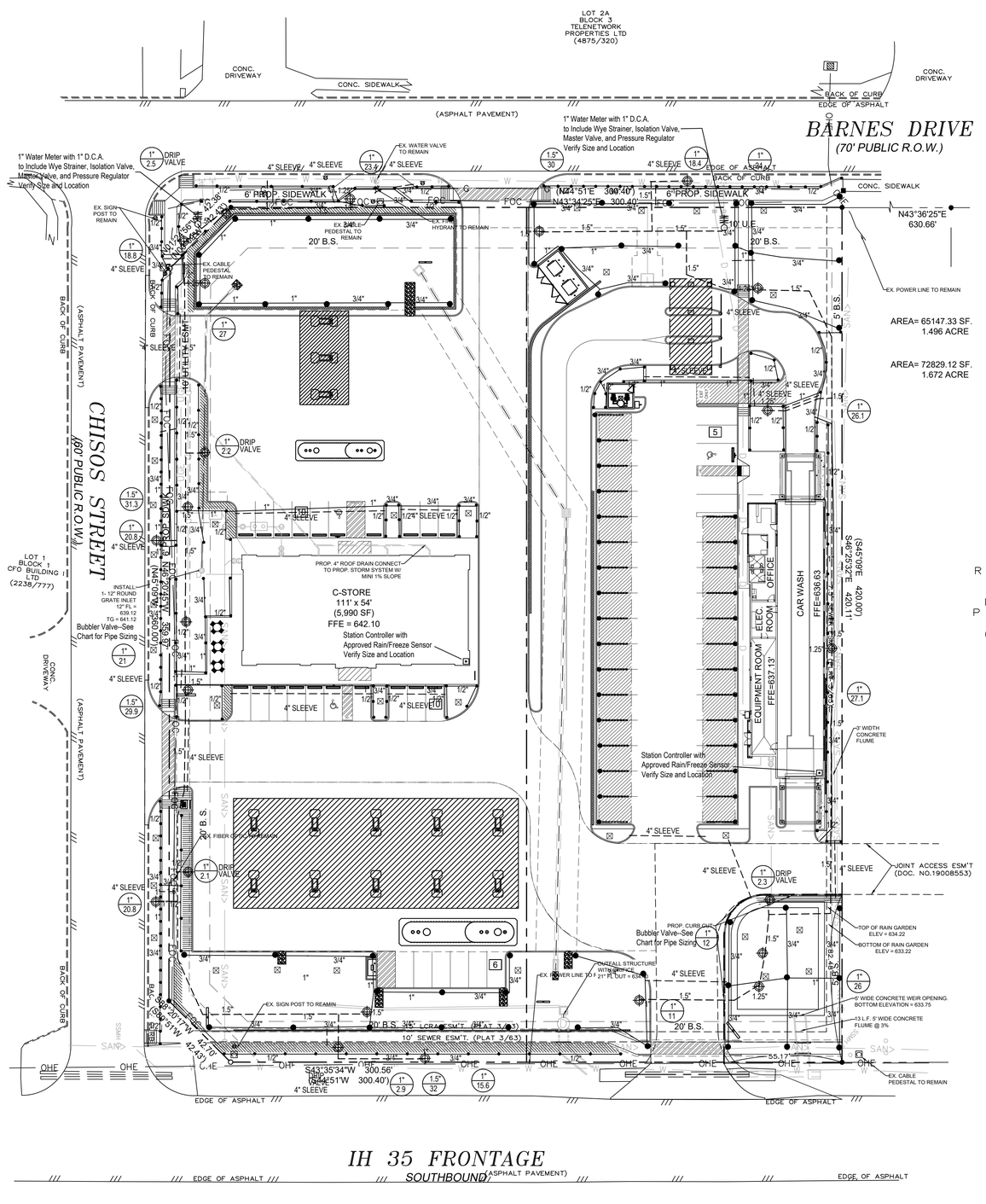
ISSUE:
FOR APPROVAL 02.12.2021

DATE:
02.12.2021

SHEET NAME:
LANDSCAPE DETAILS

SHEET NUMBER:

L.2



TCEQ 2009 NOTES

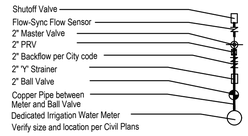
- *All irrigation equipment to be located no closer than 4" to any pavement and / or structure*
- *Electrical splices at each valve and controller only.*
- *Irrigation in Texas is regulated by the Texas Commission on Environmental Quality (TECQ) MC-178 / P.O. BOX 13087 Austn, Texas 78711-3087 www.tceq.state.tx.us*

BUBBLER PIPING CHART

1-5 BUBBLERS - 1/2" PIPE
6-10 BUBBLERS - 3/4" PIPE
11-20 BUBBLERS - 1" PIPE
21-30 BUBBLERS - 1 1/4" PIPE
31-40 BUBBLERS - 1 1/2" PIPE

IRRIGATION LEGEND

- Hunter PRS30-04 4" Pop-up Spray Head with Plastic Hunter Pro Adjustable Nozzle
- Hunter PRS30-12 12" Pop-up Spray Head with Plastic Hunter Pro Adjustable Nozzle
- Hunter PGP Ultra-04 Rotors
- Hunter Multi-Stream Bubbler Nozzle on Hunter PRS30-06 Pop-up Spray Head
- Spray, Rotor & Bubbler Zones-Hunter PGV Control Valves (PGV101G & PGV-151) (See Plan for Size) Drip Zones-Hunter ICZ Drip Zone Control Kits (ICZ-101) (See Plan for Size)
- Hunter I-Core series Controller with Hunter Solar Sync Sensor & Hunter Flow-Sync Sensor
- WATER METER, SIZE AS INDICATED D.C.A., SIZE AS INDICATED to Include Wye Strainer, Isolation Valve, Master Valve, and Pressure Regulator
- PVC CLASS 200 LATERAL LINE
- PVC CLASS 200 MAINLINE
- PVC SCHEDULE 40 SLEEVING
- VALVE SIZE GPM
- HUNTER HDL-09-12-100-PC Drip Line and Fittings (12" LATERAL SPACING, 12" EMITTER SPACING) PVC LATERAL PIPING SIZED AS REQUIRED INSTALL ALL EQUIPMENT ACCORDING TO MANUFACTURERS SPECIFICATIONS



SLEEVING NOTES

1. *Contractor shall lay sleeves and conduits at twenty-four (24") inches below finish grade of the top of pavement.*
2. *Contractor shall extend sleeves one (1') foot beyond edge of all pavement.*
3. *Contractor shall cap pipe ends using PVC caps.*
4. *All sleeves shall be Schedule 40 PVC pipe.*
5. *Contractor shall furnish Owner and Irrigation Contractor with an 'as-built' drawing showing all sleeve locations.*

Water Pressure Calculations

Static Pressure (at the water meter)- 65 psi
Design Pressure for Remote Zone- 56.4 psi
Pressure Losses for Remote Zone and Meter Components- 21.4 psi

Water Meter Components- Pressure Losses

Master Valve Pressure- 2 psi
Pressure Regulator- 1.2 psi
Back Flow- 5 psi
Wye Strainer-.75 psi
Ball Valve- .8 psi

Irrigation Zones Pressure Losses- (most remote zone)

Main Line- 8.1 psi
Valve- 2 psi
Later Line- 1.5 psi
Sprinkler requirements-35 psi

IRRIGATION NOTES

1. *All sprinkler equipment numbers reference the HUNTER equipment catalog unless otherwise indicated.*
2. *LAWN SPRAY HEADS are SRS-04 installed as per detail shown.*
3. *SHRUB SPRAY HEADS are SRS-12 installed as per detail shown.*
4. *ELECTRIC CONTROL VALVES shall be HUNTER PGV-S SERIES installed per detail shown. Size valves as sown on plan. Valves shall be installed in value boxes large enough to permit manual operation, removal of solenoid and/or valve cover without any earth excavation.*
5. *QUICK COUPLING VALVES shall be HQ-44-LRC-AW installed per detail shown. Swing joints shall be constructed using 1" Schedule 80 elbows. Contractor shall supply owner with three (3) HK couplers and three (3) #10 swivel hose ells as part of this contract.*
6. *AUTOMATIC CONTROLLER shall be installed at location shown. Power (120V) shall be located in a junction box within five (5') feet of controller location by other trades.*
7. *All 24 volt valve wiring is to be UF 14 single conductor. All wire splices are to be permanent and waterproof.*
8. *SLEEVES shall be installed by General Contractor. Sleeve material shall be Schedule 40. Size as indicated on plan.*
9. *Ten days prior to start of construction, Landscape or Irrigation Contractor shall verify static water pressure. If static pressure is less than 65 P.S.I., do not work until notified to do so by Owner.*
10. *All main line and lateral piping to a minimum of 12 inches of cover. All piping under paving shall have a minimum of 18" of cover.*
11. *The Irrigation Contractor shall coordinate installation of the system with the Landscape Contractor so that all plant material will be watered in accordance with the intent of the plans and specifications.*
12. *The Irrigation Contractor shall select the proper arc and radius for each nozzle to insure 100% and proper coverage of all lawn areas and plant material. All nozzles in parking lot islands and planting beds shall be low angle to minimize over spray on pavement surfaces. No water will be allowed to spray on building.*

DRIP IRRIGATION NOTES

1. *Drip Irrigation Equipment numbers reference Rainbird Equipment Catalog unless otherwise noted.*
2. *Landscape Contractor shall be required to supply Owner's Construction Manager with all equipment specifications and maintenance guidelines.*
3. *Landscape Contractor shall be required to follow Manufacturer's Specifications and Installation guidelines for drip system.*
4. *PRESSURE COMPENSATING EMITTERS shall be: Multioutlet Rain Bug EM6-M101, Multi outlet Shrub Bug EMT6-M101 or approved equal. (1 PER EVERY 6 - 4" POTS)*
5. *SINGLE OUTLET PRESSURE COMPENSATING EMITTERS shall be: Rain Bug Emitters EM-Mo5, -M10, -M20 and Shrub Bug Emitters EMT-M10, -M20 or approved equal. (1 PER EACH 1 OR 5 GAL PLANT)*
6. *DRIP PRESSURE REGULATORS shall be: PSI-HLA-15, PSI-HLA-20, PSI-HMB-20, PSI-HMB-25 or approved equal.*
7. *Y-FILTERS shall be: RBY-075-200, RBY-100-200 or approved equal.*
8. *MAIN IRRIGATION TUBING shall be:RBT-150P,RBT-160V or approved equal.*
9. *EMITTER DISTRIBUTION TUBING shall be: RBT-150P, RBT-160V or approved equal.*
10. *SUBTERRANEAN EMITTER BOX shall be: SEB-6 or approved equal.*
11. *Drip system piping only occurs within shrub / groundcover beds and rock mulch areas. Piping shall be a maximum 4" depth and a minimum 2" depth.*
12. *Contractor shall verify that all drip system valves and spray system valves are sectioned separately on controller.*

CITY IRRIGATION NOTES

1. *Check valves to be used as needed to prevent low-head drainage.*
2. *PVC pipe to be sized such that flows will not exceed velocity of 5 FPS.*
3. *PVC pipe joints to be primed with colored primer before applying PVC cement.*

01 IRRIGATION PLAN
SCALE 1"=30'-0"
0 15 30 60

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15638
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05.26.2022

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ISSUE:
FOR APPROVAL 02.12.2021
CITY COMMENTS 06.17.2021
CITY COMMENTS 10.27.2021
CITY COMMENTS 05.26.2022

DATE:
05.26.2022

SHEET NAME:
IRRIGATION PLAN

SHEET NUMBER:

L.3

SECTION 02810 - IRRIGATION

PART 1 - GENERAL

1.1 SCOPE

A. Provide complete sprinkler installation as detailed and specified herein, includes furnishing all labor, materials, and equipment for the proper installation. Work includes but is not limited to:

1. Trenching and backfill
2. Automatic controlled system.
3. Upon completion of installation, supply drawings showing details of construction including location of mainline piping, manual and automatic valves, electrical supply to valves, and specifically exact location of automatic valves.

B. All sleeves as shown on plans will be furnished by General Contractor. Meter and power source to be provided by General Contractor.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. See Irrigation Plans. See plans for controller, heads, and valves.

B. Section 02900-Landscape

C. Section 02811-Underground Irrigation Sleeve and Utility Conduits

1.3 APPLICABLE STANDARDS

A. America Standard for Testing and Materials (ASTM) – Latest edition.

1. D2241 Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
2. D2464 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Thread, Schedule 80
3. D2455 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
4. D2467 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Socket Type, Schedule 80
5. D2564 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings
6. D2287 Flexible Poly Vinyl Chloride (PVC) Plastic Pipe
7. F656 Poly Vinyl Chloride (PVC) Solvent Weld Primer
8. D2855 Making Solvent – Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings

1.4 MAINTENANCE AND GUARANTEE

A. Materials and workmanship shall be fully guaranteed for one (1) year after final acceptance.

B. Provide maintenance of system, including raising and lowering of heads to compensate for lawn growth, cleaning and adjustment of heads, raising and lowering of shrub heads to compensate for shrub growth, for one (1) year after completion of installation.

C. Guarantee is limited to repair and replacement of defective materials or workmanship, including repair of backfill settlement.

1.5 SUBMITTALS

A. Procedure: Comply with Division I requirements.

B. Product Data: Submit (5) copies of equipment manufacturer's specifications and literature for approval by Landscape Architect prior to installation.

C. Project Record Documents

1. Comply with Division I requirements.
2. Locate by written dimension, routing of mainline piping, remote control valves and quick coupling valves. Locate mainlines by single dimensions from permanent site features provided they run parallel to these elements. Locate valves, intermediate electrical connections, and quick couplers by two dimensions from a permanent site feature at approximately 70 degrees to each other.
3. When dimensioning is complete, transpose work to mylar reproducible tracings.
4. Submit completed tracings prior to final acceptance. Mark tracings "Record Prints Showing Significant Changes". Date and sign drawings.
5. Provide three complete operation manuals and equipment brochures neatly bound in a hard back three-ring binder. Include product data on all installed materials. Include warranties and guarantees extended to the Owner by the manufacturer of all equipment.

D. Quick Coupler Keys: Provide 3 coupler keys with boiler drains attached using brass reducer.

E. Controller Keys: Provide three sets of keys to controller enclosure(s).

F. Use of materials differing in quality, size, or performance from those specified will only be allowed upon written approval of the Landscape Architect. The decision will be based on comparative ability of material or article to perform fully all purposes of mechanics and general design considered to be expressed by item specified.

G. Bidders desiring to make a substitution for specified sprinklers shall submit manufacturer's catalog sheet showing full specification of each type sprinkler proposed as a substitute, including discharge in GPM maximum allowable operating pressure at sprinkler.

H. Approval of substitute sprinkler shall not relieve Irrigation Contractor of his responsibility to demonstrate that final installed sprinkler system will operate according to intent of originally designed and specified system.

I. It is the responsibility of the Irrigation Contractor to demonstrate that final installed sprinkler system will operate according to intent of originally designed and specified system. If Irrigation Contractor notes any problems in head spacing or potential coverage, it is his responsibility to notify the Landscape Architect in writing, before proceeding with work. Irrigation Contractor guarantees 100% coverage of all areas to be irrigated.

1.6 TESTING

A. Perform testing required with other trades, including earthwork, paving, plumbing, electrical, etc. to avoid unnecessary cutting, patching and boring.

B. Wire Connectors: Waterproof splice kit connectors. Type DBY by 3M.

2.6 SCHEDULE 80 PVC NIPPLES

A. Composed of Standard Schedule 40 PVC Fittings and PVC meeting noted standards. No clamps or wires may be used. Nipples for heads and shrub risers to be nominal one-half inch diameter by eight inches long, where applicable.

B. Polyethylene nipples six (6") inches long to be used on all pop-up spray heads.

2.7 MATERIALS - See Irrigation Plan

A. Sprinkler heads in lawn area as specified on plan.

B. PVC Pipe: Class 200, SPR 21
Copper Tubing (City Connection): Type "M"
24V Wire: Size 14, Type U.F.

C. Electric valves to be all plastic construction as indicated on plans.

D. Refer to drawing for backflow prevention requirements and flow valve.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Staking: Before installation is started, place a stake where each sprinkler is to be located, in accordance with drawing. Staking shall be approved by Landscape Architect before proceeding.

B. Excavations: Excavations are unclassified and include earth, loose rock, rock or any combination thereof, in wet or dry state. Backfill trenches with material that is suitable for compaction and contains no lumps, clods rock, debris, etc. Special backfill specifications, if furnished take preference over this general specification.

C. Backfill: Flood or hand-tamp to prevent after settling. Hand rake trenches and adjoining area to leave grade in as good or better condition than before installation.

D. Piping Layout: Piping layout is diagrammatic. Route piping around trees and shrubs in such a manner as to avoid damage to plantings. Do not dig within ball of newly planted trees or shrubs.

3.2 PIPE INSTALLATION

A. Sprinkler Mains: Install a four (4") inch minimum trench with a minimum of eighteen (18") inches of cover.

B. Lateral Piping: Install a four (4") inch wide minimum trench deep enough to allow for installation of sprinkler heads and valves, but in no case, with less than twelve (12") of cover.

C. Trenching: Remove lumber, rubbish, and large rocks from trenches. Provide firm, uniform bearing for entire length of each pipe line to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before welding, and keep piping clean by approved means during and after laying of pipe.

3.3 PVC PIPE AND FITTING ASSEMBLY

A. Solvent: Use only solvent recommended by manufacturer to make solvent-welded joints. Thoroughly clean pipe and fittings of dirt, dust and moisture before applying solvent.

B. PVC to metal connection: Work metal connections first. Use a non-hardening pipe dope such as Permatex No. 2 on threaded PVC adapters into which pipe may be welded.

3.4 COPPER TUBING AND FITTING ASSEMBLY

Clean pipe and fitting thoroughly and lightly sand pipe connections to remove residue from pipe. Attach fittings to tubing in an approved manner using 50-50 soft solid core solder.

3.5 POP-UP SPRAY HEADS

Supply pop-up spray heads in accordance with materials list and plan. Attach sprinkler to lateral piping with a semi-flexible polyethylene nipple not less than three (3") inches or more than six (6") inches long.

3.6 VALVES

Supply valves in accordance with materials list and sized according to drawings. Install valves in a level position in accordance with Manufacturer's Specifications. See plan for typical installation of electric valve, valve box.

3.7 WIRING

A. Supply wire from the automatic sprinkler controls to the valves. No conduit will be required for U.F. wire unless otherwise noted on the plan. Wire shall be tucked under the piping.

B. A separate wire is required from the control to each electric valve. A common neutral wire is also required from each control to each of the valves served by each particular control.

C. Bundle multiple wires and tape them together at ten (10') foot intervals. Install ten (10") inch expansion coil at not more than one hundred (100') foot intervals. Make splices waterproof.

3.8 AUTOMATIC SPRINKLER CONTROLS

Supply in accordance with Irrigation Plan. Install according to manufacturer's recommendations.

3.9 TESTING

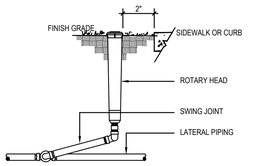
A. Sprinkler Mains: Test sprinkler main only for a period of twelve (12) to fourteen (14) hours under normal pressure. If leaks occur, replace joint or joints and repeat test.

B. Complete tests prior to backfilling. Sufficient backfill material may be placed in trenches between fittings to insure stability of line under pressure. In each case, leave fittings and couplings open to visual inspection for full period of test.

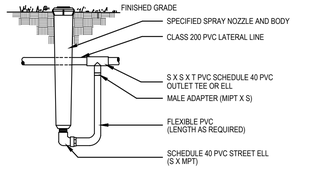
3.10 FINAL ADJUSTMENT

After installation has been completed, make final adjustment of sprinkler system in preparation for Landscape Architect's final inspection. Completely flush system to remove debris from lines and turning on system. Check sprinklers for proper operation and proper alignment for direction of flow. Check each section of spray heads for operating pressure and balance to other sections by use of flow adjustment and top of each valve. Check nozzling for proper coverage. Prevailing wind conditions may indicate that arch of angle of spray should be other than shown on drawings. In this case, change nozzles to provide correct coverage.

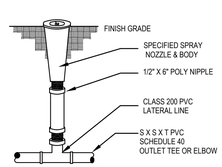
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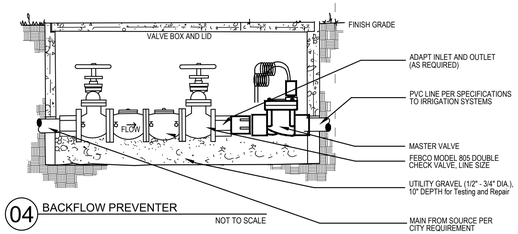
01 ROTARY HEAD
NOT TO SCALE



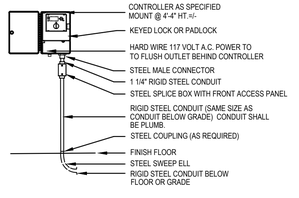
02 HIGH POP-UP SPRAY ASSEMBLY
NOT TO SCALE



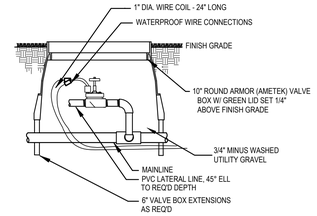
03 POP-UP LAWN SPRAY ASSEMBLY
NOT TO SCALE



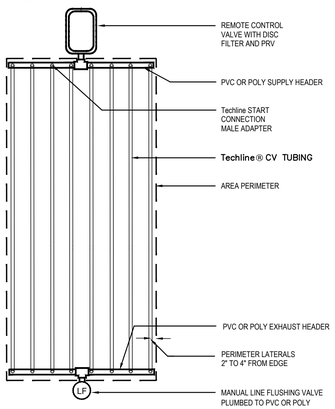
04 BACKFLOW PREVENTER
NOT TO SCALE



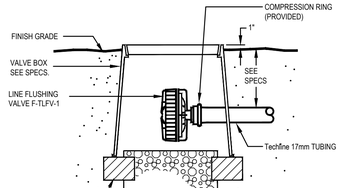
05 WALL MOUNTED CONTROLLER
NOT TO SCALE



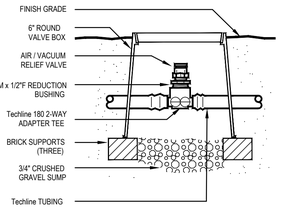
06 REMOTE CONTROL VALVE
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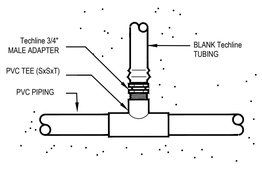
07 TechLine CV END FEED LAYOUT
NOT TO SCALE



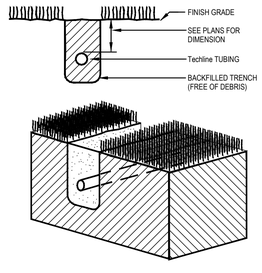
08 TechLine LINE FLUSHING VALVE
NOT TO SCALE



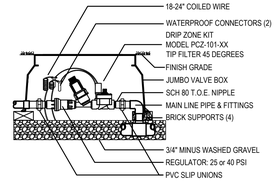
09 TechLine AIR/VACUUM RELIEF
NOT TO SCALE



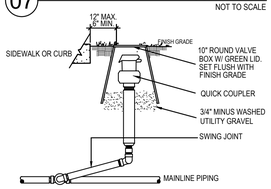
11 TechLine START CONNECTION
NOT TO SCALE



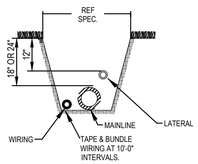
12 TechLine TRENCHING
NOT TO SCALE



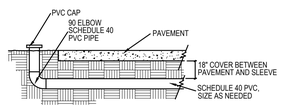
13 DRIP CONTROL VALVE
NOT TO SCALE



14 QUICK COUPLER
NOT TO SCALE



15 TRENCH DETAIL
NOT TO SCALE



16 SLEEVE DETAIL
NOT TO SCALE

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