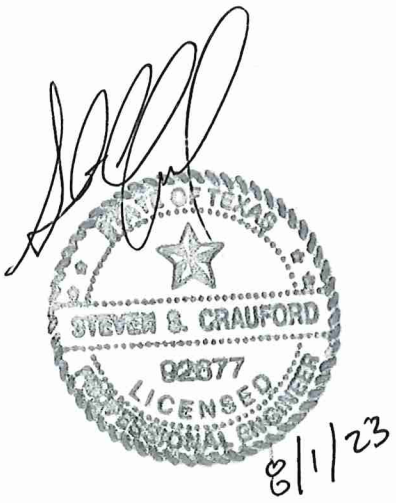
KISSING TREE PHASE 6E

CONTRIBUTING ZONE PLAN MODIFICATION APPLICATION (50848-64)

Prepared By:
PAPE-DAWSON CONSULTING ENGINEERS, LLC.
Texas Board of Professional Engineers, Firm Registration # 470
10801 NORTH MOPAC EXPRESSWAY, BUILDING 3 – SUITE 200
AUSTIN, TEXAS 78759
(512) 454-8711



August 2023

PAPE-DAWSON ENGINEERS

Transportation | Water Resources | Land Development | Surveying | Environmental

KISSING TREE PHASE 6E

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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Kissing Tree Phase 6E						**2. Regulated Entity No.: 111587382**			
3. Customer Name: Carma Paso Robles, LLC						**4. Customer No.: 603437310**			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			32.63
9. Application Fee:	$6,500		**10. Permanent BMP(s):**			1 Water Quality Pond			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Hays		**14. Watershed:**			Cottonwood Creek, Willow Springs Creek			

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	_X_	___	___
Region (1 req.)	_X_	___	___
County(ies)	_X_	___	___
Groundwater Conservation District(s)	X_Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City X San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

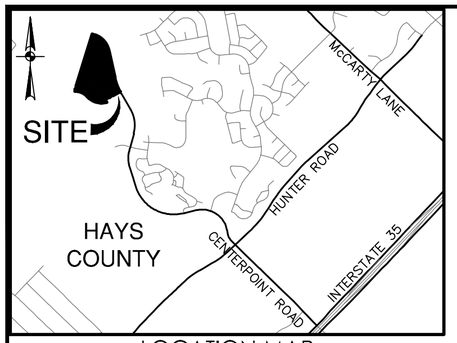
I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Steven S. Crauford, P.E.
Print Name of Customer/Authorized Agent
Signature of Customer/Authorized Agent — Date: 8/1/23

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

LEGAL BOUNDARY

FINAL PLAT
OF
PASO ROBLES, PHASE 6E

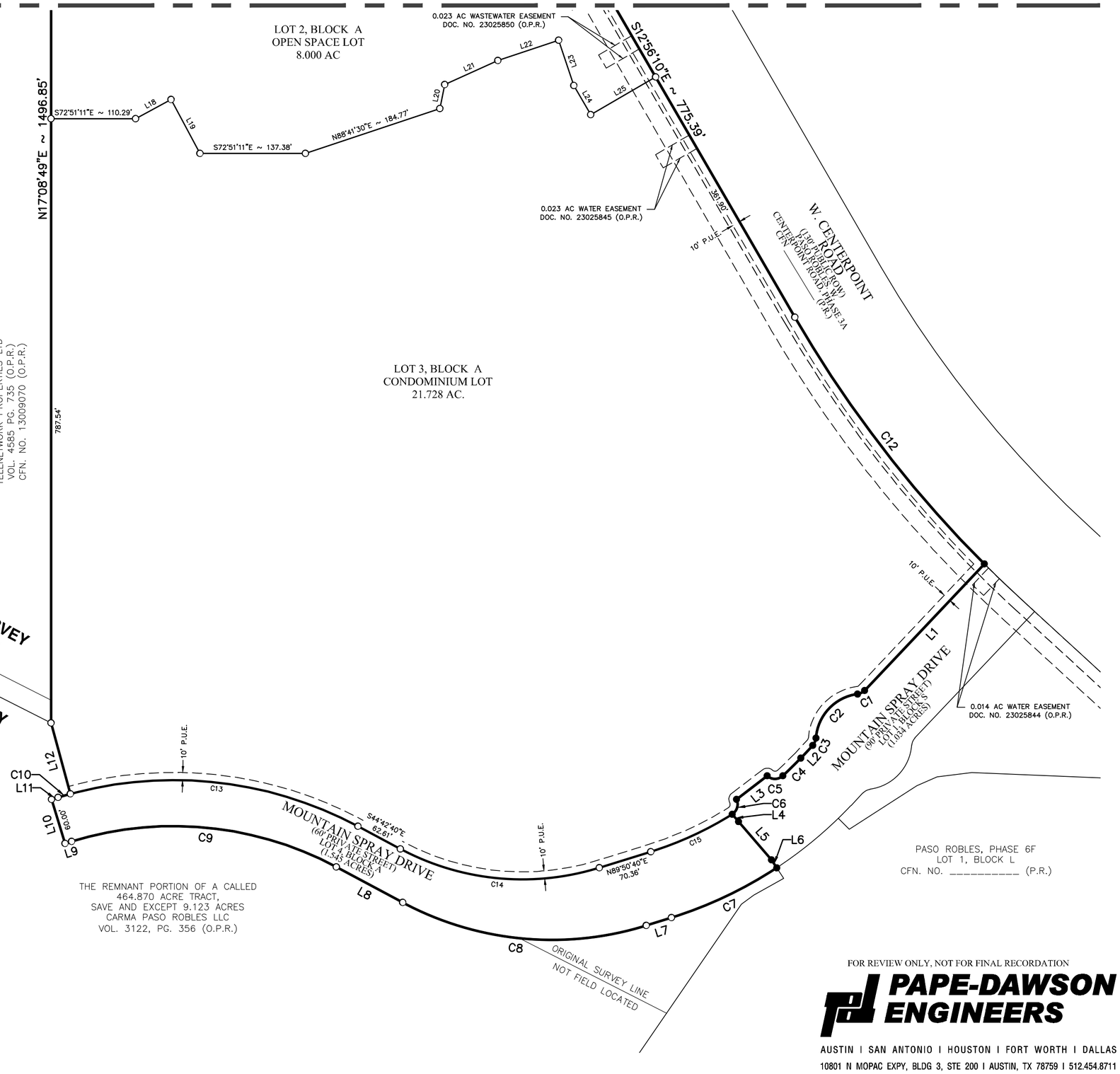
A 32.627 ACRE TRACT OF LAND, BEING OUT OF THE REMNANT PORTION OF A CALLED 464.870 ACRE TRACT, SAVE AND EXCEPT A CALLED 9.123 ACRE TRACT, RECORDED IN VOLUME 3122, PAGE 356 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS, AND BEING OUT OF THE REMNANT PORTION OF A CALLED 301.926 ACRE TRACT, SAVE AND EXCEPT 5.036 ACRE TRACT, RECORDED IN VOLUME 3390, PAGE 411 OF SAID OFFICIAL PUBLIC RECORDS, SITUATED IN THE JOHN WILLIAMS SURVEY, ABSTRACT NO. 471 AND THE ISAAC LOWE SURVEY, SECTION NO. 2, ABSTRACT NO. 287, IN THE CITY OF SAN MARCOS, HAYS COUNTY, TEXAS.



LOCATION MAP
1" = 3000'

0' 100' 200' 300'
SCALE: 1"= 100'

MATCHLINE - SEE SHEET 2 OF 3



OWNER: CARMA PASO ROBLES, LLC
9600 N MOPAC EXPRESSWAY, SUITE 750
AUSTIN, TX 78759
512-391-1330 P
512-391-1333 F

ACREAGE: 32.627 ACRES
PRIVATE STREET LOTS: 1.545 ACRES

SURVEYOR: PAPE-DAWSON ENGINEERS, INC.
10801 N. MOPAC EXPY, BLDG. 3, SUITE 200
AUSTIN, TX 78759
(512) 454-8711 P
(512) 459-8867 F

ENGINEER: PAPE-DAWSON ENGINEERS, INC.
10801 N. MOPAC EXPY, BLDG. 3, SUITE 200
AUSTIN, TX 78759
(512) 454-8711 P

NUMBER OF BLOCKS: 1

SUBMITTAL DATE: _____

NUMBER OF LOTS BY TYPE:
OPENS PACE LOT: 1
UTILITY LOT: 1
CONDOMINIUM LOTS: 1
PRIVATE STREET LOTS: 1

BENCHMARK DESCRIPTION AND ELEVATION:
BENCHMARK 103
SET MAG NAIL IN CONCRETE PAD
NAD 83 GRID COORDINATES
N: 13854272.0
E: 2288201.8
ELEVATION 712.49' (NAVD 1988) GEOID 12A

BENCHMARK 101
CHISELED SQUARE ON CONCRETE DRAINAGE STRUCTURE
NAD 83 GRID COORDINATES
N: 13854108.7
E: 2289351.8
ELEVATION: 692.49' (NAVD 1988) GEOID 12A

LEGEND

CFN	CLERK'S FILE NUMBER
DOC	DOCUMENT NUMBER
OPR	OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS
PR	PLAT RECORDS OF HAYS COUNTY, TEXAS
DR	DEED RECORDS OF HAYS COUNTY, TEXAS
MFFE	MINIMUM FINISHED FLOOR ELEVATION
FD. I.R.	FOUND IRON ROD
ROW	RIGHT OF WAY
VOL	VOLUME
PG	PAGE (S)
(SURVEYOR) ●	FOUND 1/2" IRON ROD PAPE-DAWSON (UNLESS NOTED OTHERWISE)
○	SET 1/2" IRON ROD (PD)

LOT SUMMARY

LOT	USAGE TYPE	NO. OF LOTS	AREA (AC.)
LOT 1, BLOCK A	UTILITY LOT	1	1.353 ACRES
LOT 2, BLOCK A	OPEN SPACE LOT	1	8.000 ACRES
LOT 3, BLOCK A	CONDOMINIUM LOT	1	21.728 ACRES
LOT 4, BLOCK A	PRIVATE STREET	1	1.546 ACRES
	TOTAL	4	32.627 ACRES

FOR REVIEW ONLY, NOT FOR FINAL RECORDATION

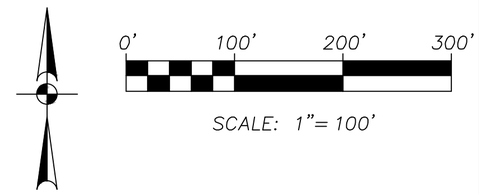
PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

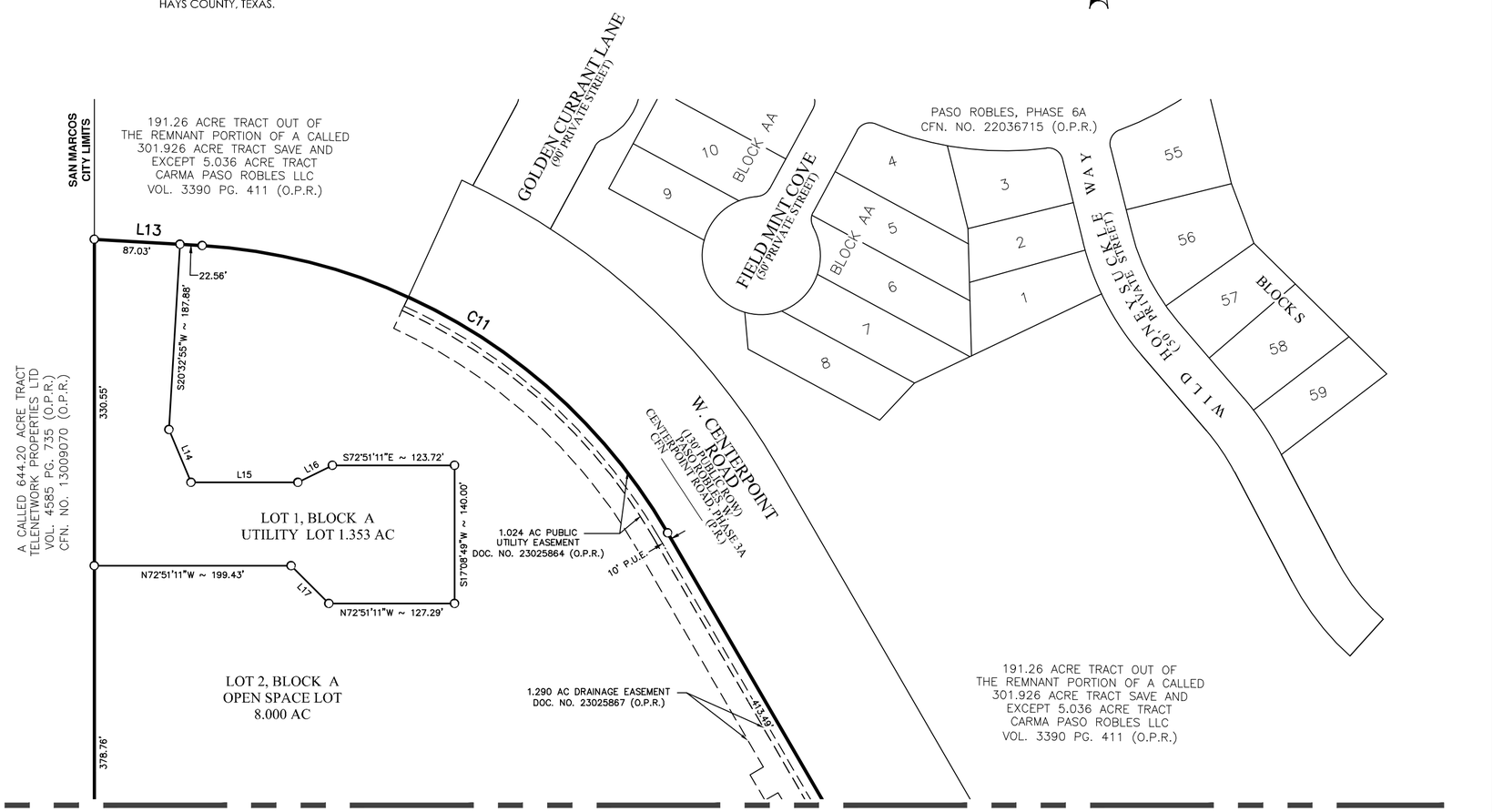
PASO RPBLES, PHASE 6E
Survey Job No. 50848-64

Date: Aug 11, 2023, 9:22am User ID: vcurcher
File: H:\Survey\CIVIL\50848-64\Plat\PL50848-64.dwg

FINAL PLAT
OF
PASO ROBLES, PHASE 6E

A 32.627 ACRE TRACT OF LAND, BEING OUT OF THE REMNANT PORTION OF A CALLED 464.870 ACRE TRACT, SAVE AND EXCEPT A CALLED 9.123 ACRE TRACT, RECORDED IN VOLUME 3122, PAGE 356 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS, AND BEING OUT OF THE REMNANT PORTION OF A CALLED 301.926 ACRE TRACT, SAVE AND EXCEPT 5.036 ACRE TRACT, RECORDED IN VOLUME 3390, PAGE 411 OF SAID OFFICIAL PUBLIC RECORDS, SITUATED IN THE JOHN WILLIAMS SURVEY, ABSTRACT NO. 471 AND THE ISAAC LOWE SURVEY, SECTION NO. 2, ABSTRACT NO. 287, IN THE CITY OF SAN MARCOS, HAYS COUNTY, TEXAS.





MATCHLINE - SEE SHEET 1 OF 3

LINE TABLE		
LINE #	BEARING	LENGTH
L1	S60°31'57"W	226.98'
L2	S60°31'57"W	22.90'
L3	S69°52'20"W	50.47'
L4	S23°15'10"E	12.63'
L5	S23°32'12"E	65.62'
L6	S16°10'04"E	12.50'
L7	S89°50'40"W	34.33'
L8	N44°42'40"W	98.22'
L9	S90°00'00"W	9.01'
L10	N00°00'00"E	60.00'
L11	N90°00'00"E	9.01'
L12	N01°52'16"E	95.76'
L13	S69°27'05"E	109.59'
L14	S05°21'11"E	57.95'
L15	S72°51'11"E	108.51'
L16	N80°34'55"E	38.97'
L17	N27°51'11"W	54.13'
L18	N78°53'40"E	52.45'
L19	S11°06'20"E	79.63'
L20	N28°39'39"E	31.77'
L21	N82°45'44"E	76.05'
L22	N88°41'30"E	83.62'
L23	S01°18'30"E	62.26'
L24	S12°56'10"E	43.81'
L25	N77°03'50"E	97.90'

CURVE TABLE					
CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	15.50'	039°08'13"	S80°06'04"W	10.38'	10.59'
C2	62.50'	078°16'25"	S60°31'57"W	78.90'	85.38'
C3	15.50'	039°08'13"	S40°57'51"W	10.38'	10.59'
C4	455.00'	004°07'25"	S62°35'40"W	32.74'	32.75'
C5	15.00'	085°03'50"	N72°48'42"W	20.28'	22.27'
C6	15.00'	085°03'50"	S32°33'22"W	20.28'	22.27'
C7	545.00'	016°00'45"	S81°50'18"W	151.82'	152.31'
C8	412.75'	045°26'40"	N67°26'00"W	318.86'	327.37'
C9	450.00'	045°17'20"	N67°21'20"W	346.51'	355.70'
C10	510.00'	001°52'32"	S89°03'44"E	16.69'	16.69'
C11	585.00'	056°30'55"	S41°11'37"E	553.92'	577.03'
C12	1565.00'	014°53'01"	S20°22'40"E	405.39'	406.54'
C13	510.00'	045°17'20"	S67°21'20"E	392.71'	403.12'
C14	337.25'	045°26'40"	S67°26'00"E	260.53'	267.49'
C15	455.00'	014°45'23"	N82°27'59"E	116.86'	117.18'

SUBDIVISION NOTES:

1. THIS PLAT (AND LOTS THEREIN) IS SUBJECT TO THE PDD AGREEMENT WITH THE CITY OF SAN MARCOS, ORDINANCE #2010-59, APPROVED OCTOBER 5, 2010.
2. BUILDING SETBACKS SHALL BE IN ACCORDANCE WITH THE PASO ROBLES PDD, OR AS APPROVED BY THE CITY OF SAN MARCOS.
3. THIS SUBDIVISION LIES WITHIN THE BOUNDARIES OF THE EDWARDS AQUIFER CONTRIBUTING AND TRANSITION ZONES.
4. EASEMENTS NOT WITHIN THE LIMITS OF THE PLAT WILL BE PROVIDED BY SEPARATE INSTRUMENT.
5. ALL PROPERTY OWNERS FRONTING ONTO A PRIVATE STREET WILL BE ASSESSED ADDITIONAL HOA FEES FOR STREET MAINTENANCE AND REPAIRS.
6. NO PORTION OF THIS TRACT IS ENCROACHED BY ANY SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 1% ANNUAL CHANCE FLOODPLAIN AS INDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY BOUNDARY MAP (FLOOD INSURANCE RATE MAP) COMMUNITY PANEL NUMBER 48209C0478F EFFECTIVE DATE SEPTEMBER 2, 2005, FOR HAYS COUNTY, TEXAS.
7. A 10 FOOT WIDE PUBLIC UTILITY EASEMENT IS HEREBY DEDICATED ADJACENT TO ALL RIGHTS-OF-WAY AND PRIVATE STREET LOTS.
8. USE OF PUBLIC UTILITY EASEMENTS BY FRANCHISE UTILITIES SHALL BE APPROVED BY THE HOMEOWNER'S ASSOCIATION.
9. RESIDENTIAL DENSITY OF LOT 3, BLOCK A SHALL NOT EXCEED 12 UNITS PER ACRE.
10. SIDEWALKS SHALL BE IN ACCORDANCE WITH THE APPROVED PASO ROBLES PDD.

LEGEND

CFN	CLERK'S FILE NUMBER
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PR	PLAT RECORDS OF HAYS COUNTY, TEXAS
DR	DEED RECORDS OF HAYS COUNTY, TEXAS
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FD. I.R.	FOUND IRON ROD
ROW	RIGHT OF WAY
VOL	VOLUME
PG	PAGE (S)
(SURVEYOR) ●	FOUND 1/2" IRON ROD PAPE-DAWSON (UNLESS NOTED OTHERWISE)
○	SET 1/2" IRON ROD (PD)

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PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

PASO RPBLES, PHASE 6E
Survey Job No. 50848-64
Date: Aug 11, 2023, 9:22am User ID: vcurcher
File: H:\Survey\Civil\50848-64\Plat\PLS0848-64.dwg

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OF
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A 32.627 ACRE TRACT OF LAND, BEING OUT OF THE REMNANT PORTION OF A CALLED 464.870 ACRE TRACT, SAVE AND EXCEPT A CALLED 9.123 ACRE TRACT, RECORDED IN VOLUME 3122, PAGE 356 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS, AND BEING OUT OF THE REMNANT PORTION OF A CALLED 301.926 ACRE TRACT, SAVE AND EXCEPT 5.036 ACRE TRACT, RECORDED IN VOLUME 3390, PAGE 411 OF SAID OFFICIAL PUBLIC RECORDS, SITUATED IN THE JOHN WILLIAMS SURVEY, ABSTRACT NO. 471 AND THE ISAAC LOWE SURVEY, SECTION NO. 2, ABSTRACT NO. 287, IN THE CITY OF SAN MARCOS, HAYS COUNTY, TEXAS.

STATE OF TEXAS §
COUNTY OF TRAVIS §

THAT CARMA PASO ROBLES, LLC, AS THE OWNER OF A CALLED 464.870 ACRE TRACT, RECORDED IN VOL. 3122, PAGE 356 OF THE OFFICIAL PUBLIC RECORDS OF HAYS COUNTY, TEXAS, AND A CALLED 301.926 ACRE TRACT, RECORDED IN VOLUME 3390, PAGE 411 OF SAID OFFICIAL PUBLIC RECORDS, SITUATED IN THE JOHN WILLIAMS SURVEY, ABSTRACT 471, AND IN THE ISAAC LOWE SURVEY, SECTION NO. 2, ABSTRACT NO. 287, IN THE CITY OF SAN MARCOS, HAYS COUNTY, TEXAS, DO HEREBY SUBDIVIDE SAID 464.870 ACRE TRACT AND SAID 301.926 ACRE TRACT OF LAND, PURSUANT TO PUBLIC NOTIFICATION AND HEARING PROVISIONS OF CHAPTER 212 OF THE TEXAS LOCAL GOVERNMENT CODE, IN ACCORDANCE WITH THIS PLAT, TO BE KNOWN AS PASO ROBLES, PHASE 6E, AND DO HEREBY DEDICATE TO THE PUBLIC THE USE OF THE EASEMENTS SHOWN HEREON SUBJECT TO ANY EASEMENTS, COVENANTS OR RESTRICTIONS HERETOFORE GRANTED AND NOT RELEASED.

_____
CHAD MATHESON, C.F.O.
CARMA PASO ROBLES, LLC

THE STATE OF TEXAS §
COUNTY OF TRAVIS §

BEFORE ME, THE UNDERSIGNED AUTHORITY ON THIS DAY PERSONALLY APPEARED _____, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND HE/SHE ACKNOWLEDGED TO ME THAT HE/SHE 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 _____, A.D. 20___.

_____
NOTARY PUBLIC, STATE OF TEXAS

_____
PRINTED NOTARY'S NAME
MY COMMISSION EXPIRES: _____

THE STATE OF TEXAS §
COUNTY OF TRAVIS §

THAT I, STEVEN S. CRAUFORD, DO HEREBY CERTIFY THAT PROPER ENGINEERING HAS BEEN GIVEN THIS PLAT TO THE MATTERS OF STREETS, LOTS AND DRAINAGE LAYOUT. TO THE BEST OF MY KNOWLEDGE THIS PLAT CONFORMS TO ALL REQUIREMENTS OF THE DEVELOPMENT CODE.

_____ _____
STEVEN S. CRAUFORD — DATE
REGISTERED PROFESSIONAL ENGINEER NO. 92677
STATE OF TEXAS
PAPE-DAWSON ENGINEERS, INC.
TBPE, FIRM REGISTRATION NO. 470
TBPLS, FIRM REGISTRATION NO. 10028801
10801 N MOPAC EXPY. BLDG. 3, SUITE 200
AUSTIN, TEXAS, 78759

THE STATE OF TEXAS §
COUNTY OF TRAVIS §

I, PARKER J. GRAHAM, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING, AND HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECT AND WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION AND THAT THE MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

_____ _____
PARKER J. GRAHAM — DATE
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5556
STATE OF TEXAS
PAPE-DAWSON ENGINEERS, INC.
TBPE, FIRM REGISTRATION NO. 470
TBPLS, FIRM REGISTRATION NO. 10028801
10801 N MOPAC EXPY. BLDG. 3, SUITE 200
AUSTIN, TEXAS, 78759

CITY OF SAN MARCOS
CERTIFICATE OF APPROVAL

APPROVED AND AUTHORIZED TO BE RECORDED ON THE ____ DAY OF _____, 20___ BY THE PLANNING AND DEVELOPMENT SERVICES OF THE CITY OF SAN MARCOS, TEXAS.

_____
CHAIRMAN, PLANNING AND ZONING COMMISSION — DATE

_____
SHANNON MATTINGLY — DATE
DIRECTOR OF DEVELOPMENT SERVICES

_____
RECORDING SECRETARY — DATE

_____
CIP AND ENGINEERING — DATE

THE STATE OF TEXAS §
COUNTY OF HAYS §

I, ELAINE H. CÁRDENAS, 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_____, 20___, A.D., AT ____ O'CLOCK __M. AND DULY RECORDED ON THE ___DAY OF _____, 20___, A.D., AT ___O'CLOCK __M. IN THE PLAT RECORDS OF HAYS COUNTY, TEXAS IN CFN:_____

WITNESS MY HAND AND SEAL OF OFFICE OF THE COUNTY CLERK OF SAID COUNTY THE ___DAY OF _____, 20___, A.D.

_____
ELAINE H. CÁRDENAS, COUNTY CLERK
HAYS COUNTY, TEXAS

FOR REVIEW ONLY, NOT FOR FINAL RECORDATION

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

Date: Aug 11, 2023, 8:23am User ID: vzurcher
File: H:\Survey\Civil\50848-64\Plat\PL50848-64.dwg

MODIFICATION TO A PREVIOUSLY APPROVED APPLICATION

Modification of a Previously Approved Contributing Zone Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Modification of a Previously Approved Contributing Zone Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Steven Crauford, P.E.

Date: 8 / / / 2023

Signature of Customer/Agent:

Project Information

1. Current Regulated Entity Name: Kissing Tree Phase 6E
   Original Regulated Entity Name: Kissing Tree Phase 6E
   Assigned Regulated Entity Number(s) (RN): 111587382
   Edwards Aquifer Protection Program ID Number(s): 11003304
   ☒ The applicant has not changed and the Customer Number (CN) is: 603437310
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):

☒ Any physical or operational modification of any best management practices or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;
☒ Any change in the nature or character of the regulated activity from that which was originally approved;
☐ A change that would significantly impact the ability to prevent pollution of the Edwards Aquifer and hydrologically connected surface water; or
☐ Any development of land previously identified in a contributing zone plan as undeveloped.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

CZP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	33.571	32.63
Type of Development	Single-Family Residential	Multi-Family Residential
Number of Residential Lots	75	78
Impervious Cover (acres)	10.36	10.56
Impervious Cover (%)	30.86 %	32.36 %
Permanent BMPs	5	4
Other	_____	_____

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved,

including previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Projec**t. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☒ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☐ Acreage has not been added to or removed from the approved plan.
   ☒ Acreage has been added to or removed from the approved plan and is discussed in *Attachment B: Narrative of Proposed Modification*.

8. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

ATTACHMENT A - ORIGINAL TCEQ APPROVAL LETTER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 23, 2022

Mr. Chad Matheson
Carma Paso Robles, LLC
9600 N Mopac Expressway, Ste 750
Austin, Texas 78759

Re: Edwards Aquifer, Hays County

NAME OF PROJECT: Kissing Tree Phase 6E; Located North of Blushing Aster Dr. and Centerpoint Rd.; San Marcos, Texas

TYPE OF PLAN: Request for Approval of a Contributing Zone Plan (CZP); 30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer

Regulated Entity No. RN111587382; Additional ID No. 11003304

Dear Mr. Matheson:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP application for the above-referenced project submitted to the Austin Regional Office by Pape-Dawson Engineers, Inc. on behalf of Carma Paso Robles, LLC on October 11, 2022. Final review of the CZP was completed after additional material was received on December 15, 2022. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 33.571 acres. It will include clearing, grading, excavation, installation of drainage improvements, and 75 single family units with associated driveways, roads, sidewalks, and utilities. The impervious cover will be 10.36 acres (30.86 percent). Project wastewater will be disposed of by conveyance to the existing San Marcos Water Recycling Center owned by the City of San Marcos.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two existing batch detention basins (Pond 5.3 and Pond 7.13, 11002734), one new batch detention basin (Pond 7.15), and two engineered vegetative filter strips, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 9,299 pounds of TSS generated from the 10.36 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

SPECIAL CONDITIONS

I. All permanent pollution abatement measures shall be operational prior to first occupancy of the homes within their respective drainage areas.

II. All sediment and/or media removed from the water quality basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

III. Since this site is located in the area defined as the Contributing Zone within the Transition Zone, §213.5(f), relating to Edwards Aquifer Notifications, is still applicable. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved Contributing Zone Plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Any modification to the activities described in the referenced CZP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
6. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated

activity. Written notification must include the name of the approved plan and file number for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.

7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved Storm Water Pollution Prevention Plan (SWPPP) must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

During Construction:

8. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
9. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been significantly reduced. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).
10. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
11. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
13. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 5, above.

After Completion of Construction:

14. Owners of permanent BMPs and measures must insure that the BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the <Austin/San Antonio> Regional Office within 30 days of site completion.
15. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of

the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through the Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

16. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Contributing Zone Plan. If the new owner intends to commence any new regulated activity on the site, a new Contributing Zone Plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
17. A Contributing Zone Plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Contributing Zone Plan must be submitted to the Austin Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
18. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/jv

Enclosures: Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Steven Crauford, P.E., Pape-Dawson Engineers, Inc.

ATTACHMENT B - NARRATIVE OF PROPOSED MODIFICATION

KISSING TREE PHASE 6E
Contributing Zone Plan Modification Application

PROJECT NARRATIVE

Kissing Tree Phase 6E is located approximately 1,600 LF North of the Blushing Aster Drive and W. Centerpoint Road intersection, within the city limits of San Marcos in Hays County, Texas. The 32.63-acre project limits are located over the Edwards Aquifer Contributing and Transition Zones. Kissing Tree Phase 6E is a proposed multi-family residential development. The site is undeveloped. Since the project is located entirely over the Edwards Aquifer Contributing and Transition Zones, a Geologic Assessment is not required by 30 TAC 213 regulations.

Kissing Tree Phase 6E is within the Paso Robles Planned Development District within the city limits of San Marcos. Under this zoning ordinance, Kissing Tree Phase 6E is required to treat to a Total Suspended Solids (TSS) removal of 85% within the Edwards Aquifer Recharge and Contributing Zones as opposed to the normal 80% TSS removal within the Edwards Aquifer Recharge and Contributing Zones as required by the TCEQ. Therefore, permanent BMPs and associated sizing calculations have been adjusted to remove the required 85% TSS as required by the Paso Robles Planned Development District.

Construction activities proposed within the Kissing Tree Phase 6E CZP include clearing, grading, excavation, installation of drainage improvements, streets, seventy-eight (78) cottage units with associated driveways, and one (1) batch detention basin. Kissing Tree Phase 6E consists of approximately 32.63-acres with 10.56-acres of proposed impervious cover. This impervious cover value includes the small portion of future roadway extension draining to Batch Detention Basin 7.15, as shown on the Water Quality Treatment Summary Sheets. There is no existing impervious cover on site.

Two (2) existing batch detention ponds, one (1) proposed batch detention pond, and one (1) engineered vegetative filter strip are proposed as the Permanent Best Management Practices (PBMPs) for this site. There is no offsite area that drains onto the project site. All PBMPs have been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 85% of the increase in TSS from the site.

Batch Detention Pond 5.3 and 7.13 were designed and permitted with Kissing Tree W. Centerpoint Road Phase 3A. These batch detention ponds (Batch Detention Pond 5.3 and 7.13) are earthen ponds with side-slopes at 3:1 with the exception of the maintenance access which is at 4:1 slopes. Batch Detention Pond 5.3 treats 2.12-acres from the 32.63-acre project limits and Batch Detention Pond 7-13 treats 2.08 acres from the 32.63-acre project limits. The 4.20-acres of impervious cover within the contributing zone is treated to 85% TSS removal under the requirements of TAC 213.3(31).

The batch detention pond (Batch Detention Pond 7.15) that is proposed with this phase is an earthen pond with side slopes at 3:1 with the exception of maintenance access which is at a 4:1 slope. This batch detention pond treats 5.86-acres from the 32.63-acre project limits. This impervious cover value includes the small portion of future roadway extension draining to Batch Detention Basin 7.15, as shown on the Water Quality Treatment Summary Sheets. The 5.08-acres of impervious cover within the contributing zone is treated to 85% TSS removal under the requirements of TAC 213.3(31). The 0.55-acres of impervious cover within the transition zone is treated to 70% TSS removal.

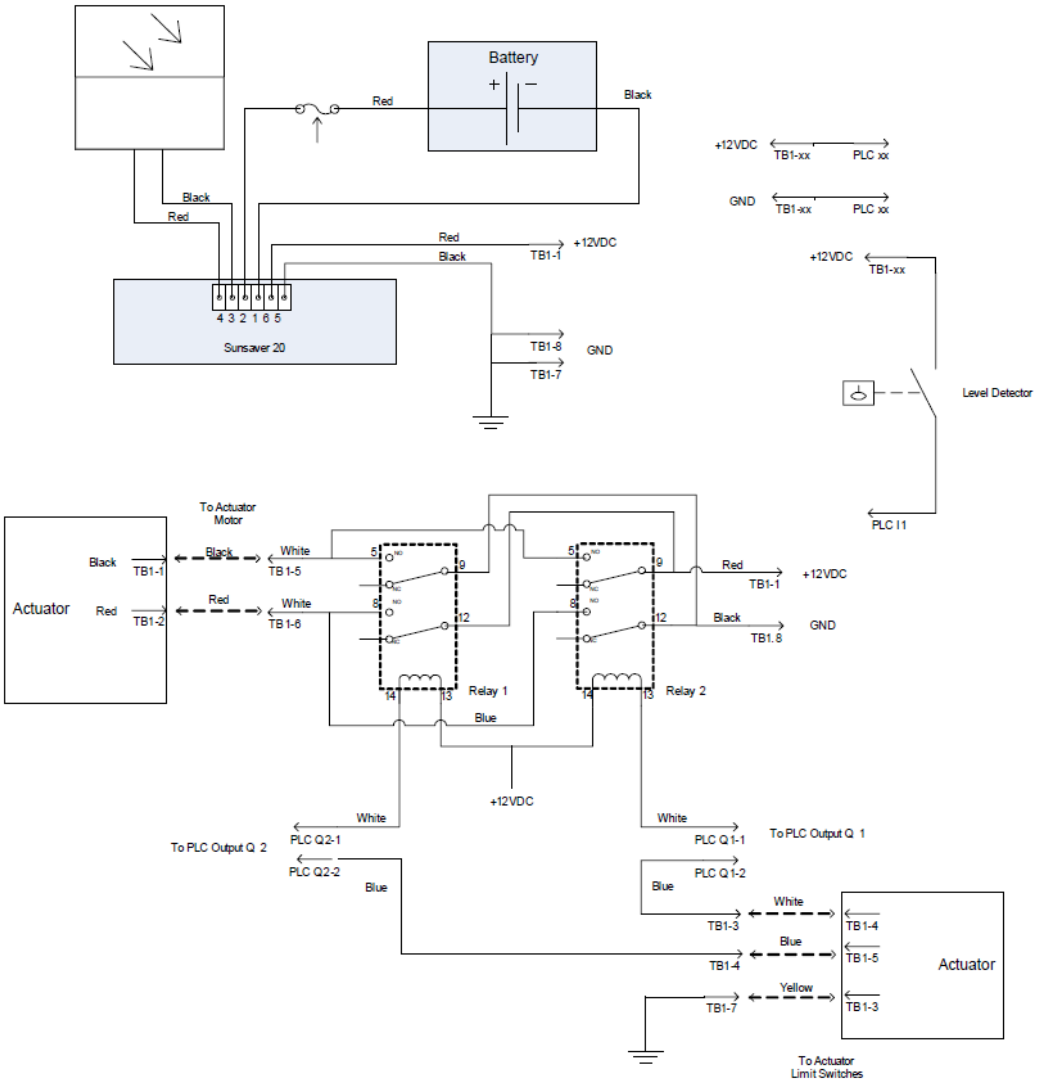
The engineered vegetative filter strip “1” treats the remaining 0.50 acres of impervious cover from the 32.63-acre project limits.

The following is a summary of the batch detention pond controller components:

Batch Detention Pond Controller Information		
Component	Description	Voltage
Power System	Solar Charged 12 VDC Battery (Model MK Powered 8GU1) (Or approved equal)	
Logic Controller	IDEC FL1C-H12RCE (Or approved equal)	12
Parts Enclosure	Southwest Photovoltaic Model BBG-1 (15.75" wide x 9.75" deep x 11.75" tall) (Or approved equal)	
Nature of Event Sensing	Anchor Scientific Float Switch (Or approved equal)	
Valve Type	Keystone 3" Butterfly Valve with over torque sensors and mechanical hand crank for physical override if necessary. Able to withstand 100 psi minimum. (Or approved equal)	

Actuator	EPI-6 12 VDC. Able to withstand 100 psi minimum. (Or approved equal)	12
Power Consumption (actuator, controller, relay, PLC)	242.58 W, 46.5 W-hours	

The following is a circuit diagram of the controller:



The logic controller will provide a test sequence. The system will be solar powered and will be equipped with a backup battery. The system will be equipped with an on/off/reset switch. The butterfly valve will be equipped with a manual hand crank for physical override if necessary in the event of a spill or for maintenance purposes. The system will be equipped with a clearly visible external indicator to indicate if a cycle is in progress without having to open the parts enclosure.

The logic controller cycle overview is as follows:

Case 1: A single rain event fills the batch detention basin. The basin holds the diverted storm water for the detention time and the releases the water. Once the batch detention basin is empty, a delay of 2 hours is started to allow the basin to completely drain, and then a close signal is sent to the actuator to close the valve.

Case 2: A single rain event occurs, but does not completely fill the batch detention basin. The basin holds the water for the detention period, and then releases it. Once the batch detention basin is empty, a delay of 2 hours is started to allow the basin to completely drain, and then a close signal is sent to the actuator to close the valve.

Case 3: A single rain event fills the batch detention basin under the trip point of the level sensor. The level sensor does not trip. The captured water is held until it infiltrates / evaporates or is joined by storm water from a subsequent storm.

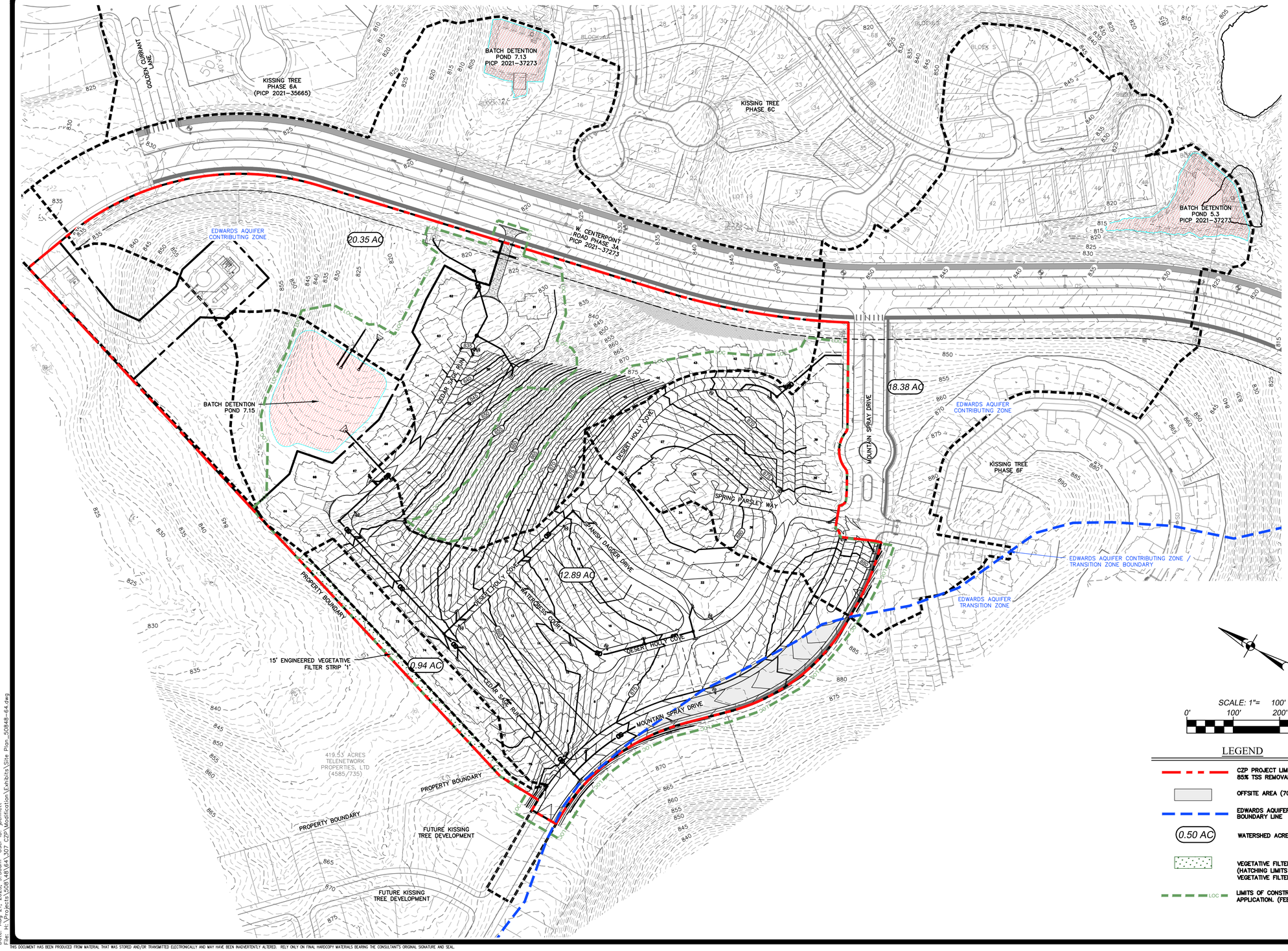
Case 4: Begins the same as Case 1. During the drawdown period, one or more additional rain events occur causing additional water to enter the batch detention basin. The valve remains open and the additional water volume is drained. Once the batch detention basin is empty, a delay of 2 hours is started to allow the basin to completely drain, and then a close signal is sent to the actuator to close the valve.

Case 5: Begins the same as Case 2. During the drawdown period, one or more additional rain events can occur causing additional water to enter the basin. The valve remains open and the additional water volume is drained. Once the batch detention basin is empty, a delay of 2 hours is started to allow the basin to completely drain, and then a close signal is sent to the actuator to close the valve.

Safety Precautions:

The system will be equipped with an alarm system that is clearly visible to indicate a system malfunction. A sign shall be posted with phone numbers of the owner and appropriate TCEQ regional office.

ATTACHMENT C - CURRENT SITE PLAN OF THE APPROVED PROJECT



NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
SITE PLAN

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 1 OF 1 OF 176

2023-XXXX

CZP APPLICATION

Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

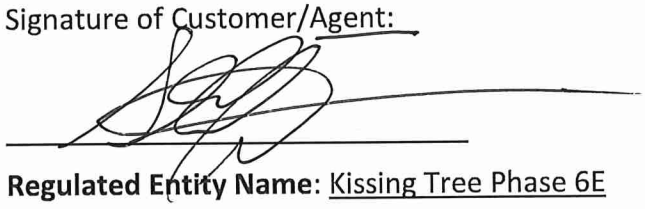
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Steven Crauford, P.E.

Date: 8/1/2023

Signature of Customer/Agent:



Regulated Entity Name: Kissing Tree Phase 6E

Project Information

1. County: Hays
2. Stream Basin: Cottonwood Creek, Willow Springs Creek
3. Groundwater Conservation District (if applicable): Edwards Aquifer Authority
4. Customer (Applicant):

   Contact Person: Chad Matheson
   Entity: Carma Paso Robles, LLC
   Mailing Address: 9600 N. Mopac Expressway, Suite 750
   City, State: Austin, TX Zip: 78759
   Telephone: (512) 391-1330 Fax: N/A
   Email Address: chad.matheson@brookfieldpropertiesdevelopment.com

5. Agent/Representative (If any):

Contact Person: Steven Crauford, P.E.
Entity: Pape-Dawson Engineers, Inc.
Mailing Address: 10801 N Mopac Expy., Bldg 3, Suite 200
City, State: Austin, TX Zip: 78759
Telephone: (512) 454-8711 Fax: (512) 459-8867
Email Address: scrauford@pape-dawson.com

6. Project Location:

☒ The project site is located inside the city limits of San Marcos, Texas.
☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
☐ The project site is not located within any city's limits or ETJ.

7. ☒ The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

From TCEQ's Austin Office, travel approximately 1 mile southeast on Park 35 Circle to I-35 South. Travel South on I-35 South approximately 42.8 miles to exit #200 towards I-35 Frontage Road in San Marcos. Exit I-35 South and travel approximately 0.6 miles on the frontage road and turn right on Centerpoint Road. Travel approximately 0.6 miles on Centerpoint Road. The Kissing Tree Subdivision is located west of the intersection of Centerpoint Road and Hunter Road. Travel 0.3 miles on W Centerpoint Road.

8. ☒ **Attachment A - Road Map**. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

9. ☒ **Attachment B - USGS Quadrangle Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') is attached. The map(s) clearly show:

☒ Project site boundaries.
☒ USGS Quadrangle Name(s).

10. ☒ **Attachment C - Project Narrative**. A detailed narrative description of the proposed project is attached. The project description is consistent throughout the application and contains, at a minimum, the following details:

☒ Area of the site
☒ Offsite areas
☒ Impervious cover
☒ Permanent BMP(s)
☒ Proposed site use
☒ Site history
☒ Previous development

☐ Area(s) to be demolished

11. Existing project site conditions are noted below:

☐ Existing commercial site
☐ Existing industrial site
☐ Existing residential site
☐ Existing paved and/or unpaved roads
☒ Undeveloped (Cleared)
☒ Undeveloped (Undisturbed/Not cleared)
☐ Other: _____

12. The type of project is:

☐ Residential: # of Lots: _____
☒ Residential: # of Living Unit Equivalents: 78
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 32.63 Acres

Total disturbed area: 23.22 Acres

14. Estimated projected population: 164

15. The amount and type of impervious cover expected after construction is complete is shown below:

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	***Sq. Ft.***	***Sq. Ft./Acre***	***Acres***
Structures/Rooftops	263,538	÷ 43,560 =	6.05
Parking	29,621	÷ 43,560 =	0.68
Other paved surfaces	166,835	÷ 43,560 =	3.83
Total Impervious Cover	459994	÷ 43,560 =	10.56

Total Impervious Cover 10.56 **÷ Total Acreage** 32.63 **X 100 =** 32.36**% Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

17. ☒ Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

18. Type of project:

☐ TXDOT road project.
☐ County road or roads built to county specifications.
☐ City thoroughfare or roads to be dedicated to a municipality.
☐ Street or road providing access to private driveways.

19. Type of pavement or road surface to be used:

☐ Concrete
☐ Asphaltic concrete pavement
☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.
Width of R.O.W.: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

21. Pavement Area:

Length of pavement area: _____ feet.
Width of pavement area: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

22. ☐ A rest stop will be included in this project.

☐ A rest stop will not be included in this project.

23. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

24. ☒ **Attachment E - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

25. ☐ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☒ N/A

26. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

☐ **Attachment F - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☒ Sewage Collection System (Sewer Lines):

The sewage collection system will convey the wastewater to the San Marcos (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons

Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

☒N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
1			
2			
3			

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
4			
5			

Total x 1.5 = _____ Gallons

28. ☐ The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

    ☐ **Attachment G - Alternative Secondary Containment Methods**. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

Table 3 - Secondary Containment

Length (L)(Ft.)	*Width(W)(Ft.)*	*Height (H)(Ft.)*	*L x W x H = (Ft3)*	*Gallons*

Total: _____ Gallons

30. Piping:

☐ All piping, hoses, and dispensers will be located inside the containment structure.
☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
☐ The piping will be aboveground
☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ **Attachment H - AST Containment Structure Drawings**. A scaled drawing of the containment structure is attached that shows the following:

☐ Interior dimensions (length, width, depth and wall and floor thickness).
☐ Internal drainage to a point convenient for the collection of any spillage.
☐ Tanks clearly labeled
☐ Piping clearly labeled

☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

    ☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

    ☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

Site Plan Requirements

Items 34 - 46 must be included on the Site Plan.

34. ☒ The Site Plan must have a minimum scale of 1" = 400'.

    Site Plan Scale: 1" = 100'.

35. 100-year floodplain boundaries:

    ☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

    ☒ No part of the project site is located within the 100-year floodplain.

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): Federal Emergency Management Administration Flood Hazard Boundary Map for Hays County, Community Panel Number 48209C0457F, effective date September 2, 2005 .

36. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.

    ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.

37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.

38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

39. ☒ Areas of soil disturbance and areas which will not be disturbed.

40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

41. ☒ Locations where soil stabilization practices are expected to occur.

42. ☐ Surface waters (including wetlands).

☒ N/A

43. ☐ Locations where stormwater discharges to surface water.

☒ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

Practices and measures that will be used during and after construction is completed.

47. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

☐ N/A

48. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____.

☐ N/A

49. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

☐ N/A

50. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the

whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

- ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
- ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
- ☒ The site will not be used for low density single-family residential development.

51. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

- ☐ **Attachment I - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
- ☒ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
- ☐ The site will not be used for multi-family residential developments, schools, or small business sites.

52. ☒ **Attachment J - BMPs for Upgradient Stormwater**.

- ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
- ☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
- ☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

53. ☒ **Attachment K - BMPs for On-site Stormwater**.

- ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
- ☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

54. ☒ **Attachment L - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

☐ N/A

55. ☒ **Attachment M - Construction Plans**. Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ☒ **Attachment N - Inspection, Maintenance, Repair and Retrofit Plan**. A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

☒ Prepared and certified by the engineer designing the permanent BMPs and measures
☒ Signed by the owner or responsible party
☒ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
☒ Contains a discussion of record keeping procedures

☐ N/A

57. ☐ **Attachment O - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

☒ N/A

58. ☒ **Attachment P - Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that result in water quality degradation.

☐ N/A

Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.

59. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an

owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

60. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

Administrative Information

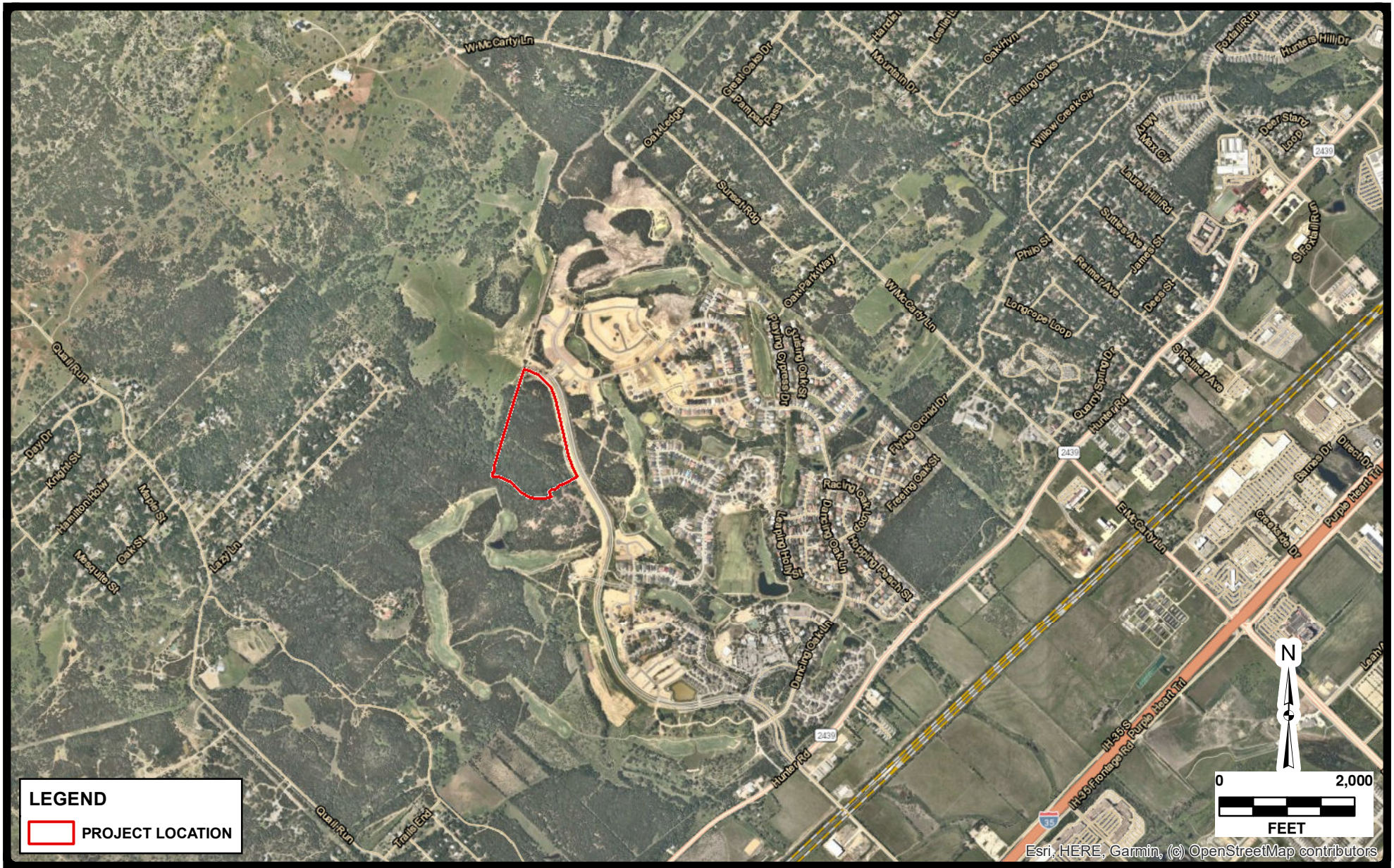
61. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions.

62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

ATTACHMENT A



LEGEND

PROJECT LOCATION

JOB NO.	50848-64
DATE	Jul 2023
DESIGNER	LM
CHECKED	LM
DRAWN	CR
SHEET	-

KISSING TREE PHASE 6E

SAN MARCOS, TX

PROJECT LOCATION MAP

PAPE-DAWSON ENGINEERS

AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS

10801 N MOPAC EXPY. BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711

TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

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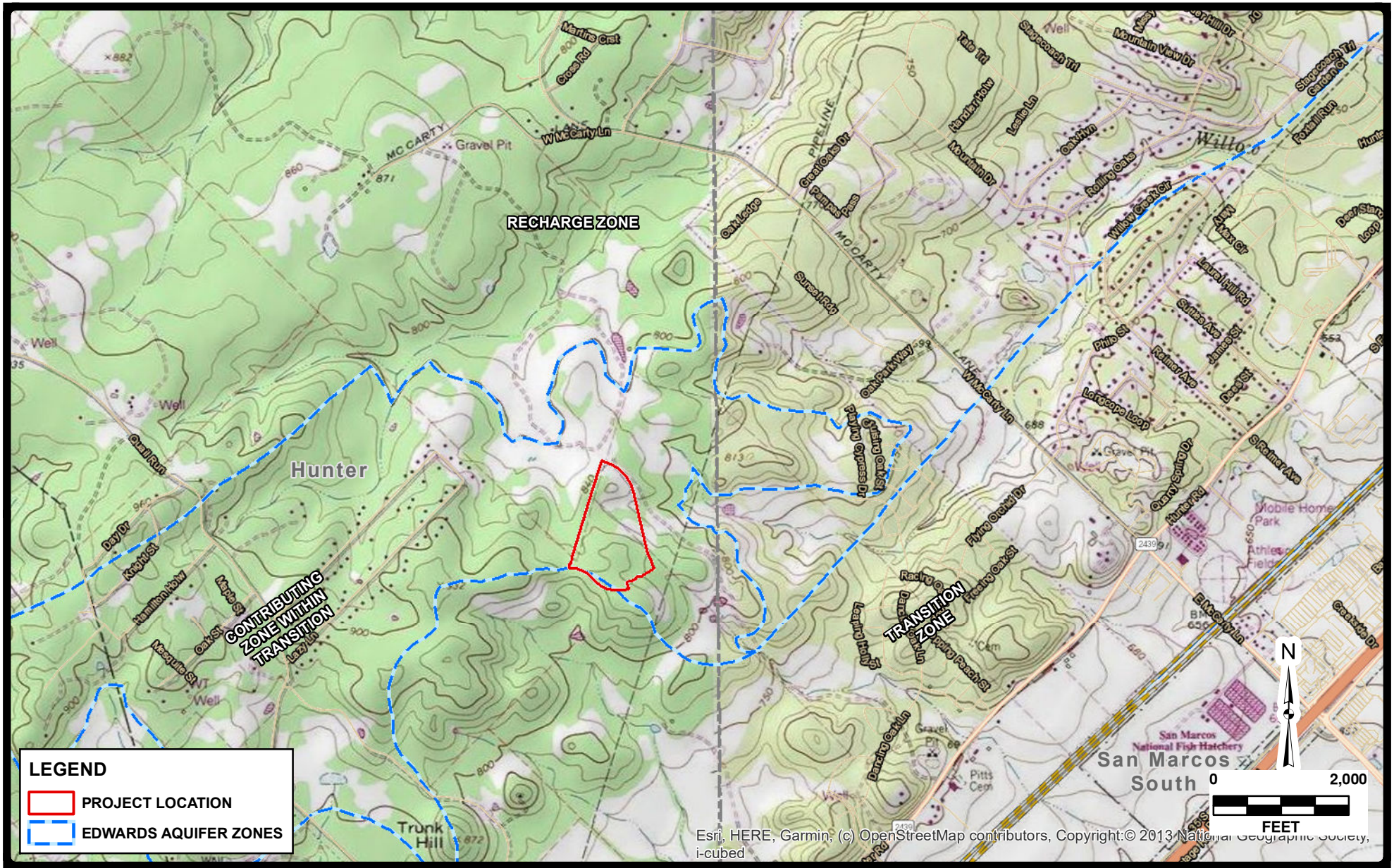
ATTACHMENT B



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JOB NO.	50848-64
DATE	Jul 2023
DESIGNER	LM
CHECKED	LM
DRAWN	CR
SHEET	-

KISSING TREE PHASE 6E

SAN MARCOS, TX

EAZ MAP

PAPE-DAWSON ENGINEERS
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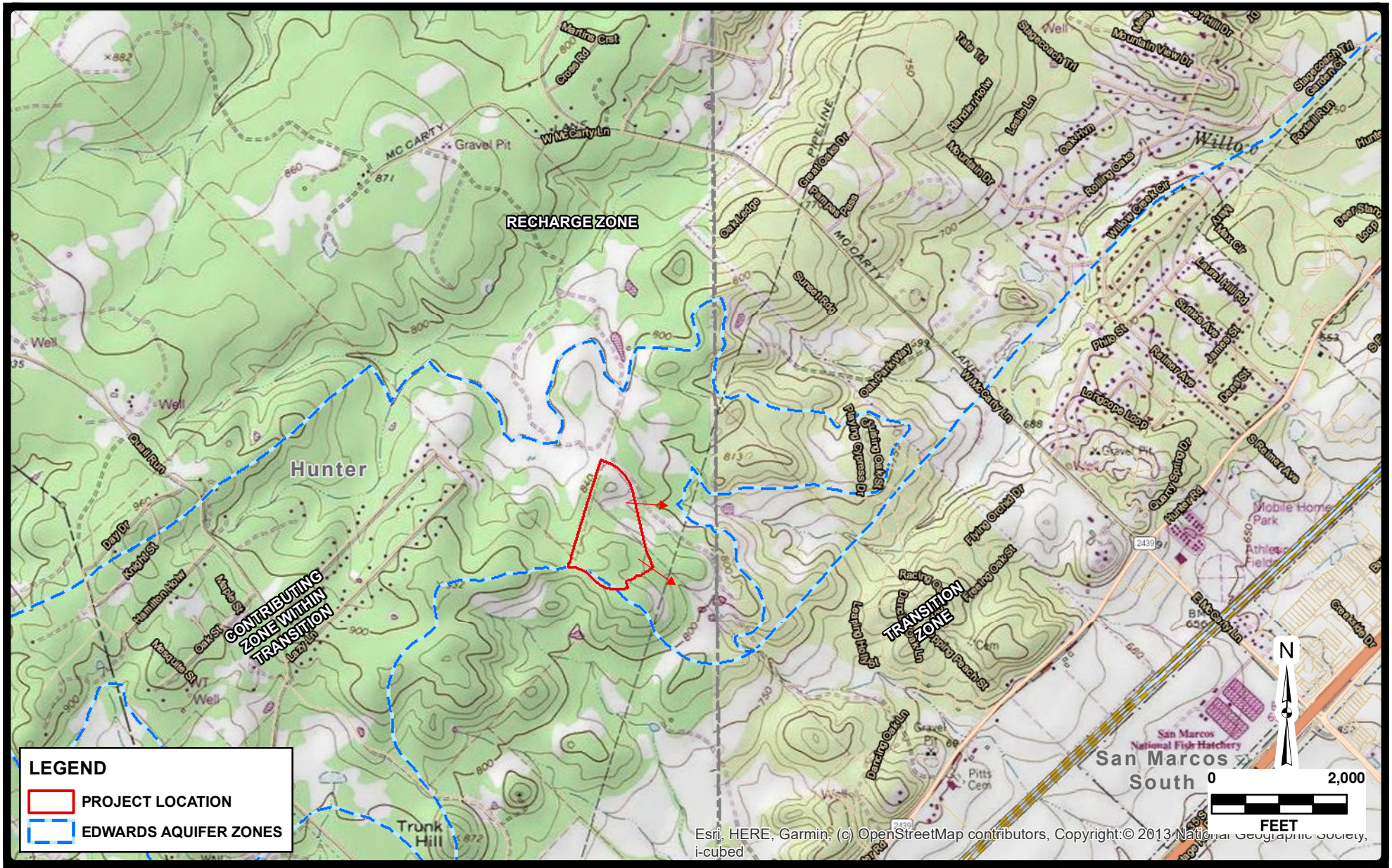
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801



Date: Jul 25, 2023 2:52:56 PM User: cne
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JOB NO.	50848-64
DATE	Jul 2023
DESIGNER	LM
CHECKED	LM
DRAWN	CR
SHEET	-

KISSING TREE PHASE 6E

SAN MARCOS, TX

EAZ FLOW MAP

PAPE-DAWSON ENGINEERS
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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

ATTACHMENT D

FACTORS AFFECTING SURFACE WATER QUALITY

Potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the construction site include:

- Soil erosion due to the clearing of the site for roads, residential homes, and drainage structures;
- Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle drippings;
- Hydrocarbons from asphalt paving operations;
- Miscellaneous trash and litter from construction workers and material wrappings;
- Construction debris;
- Concrete truck washout; and
- Potential overflow/spills from portable toilets.

Potential sources of pollution that may be reasonably be expected to affect the quality of stormwater discharges from the site after development include:

- Oil, grease, fuel, and hydraulic fluid contamination from vehicle and maintenance equipment drippings;
- Dirt and dust which may fall off vehicles; and
- Miscellaneous trash and litter.

ATTACHMENT E

VOLUME AND CHARACTER OF STORMWATER

Stormwater runoff will increase as a result of this development. The 100-year pre-development peak flow for Basin 5 is 1653 cfs. For a 100-year storm event, the project will generate approximately 142.1 cfs from Batch Detention Pond 5-3 with a watershed post-development 100-year flow of 1485 cfs for Basin 5. The runoff coefficients for the drainage areas to Pond 5.3 change from approximately 80 to 87.1, before and after development.

The 100-year pre-development peak flow for Basin 7 is 1,735 cfs. For a 100-year storm event, the project will generate approximately 178.9 cfs from Batch Detention Pond 7-13 and 51.1 cfs from Batch Detention Pond 7-15 with a watershed post-development 100-year flow of 1,252 cfs for Basin 7. The runoff coefficients for the drainage areas to Pond 7.13 change from approximately 80 to 85.5, before and after development. The runoff coefficients for the drainage areas to Pond 7.15 change from approximately 80 to 88.2, before and after development.

Values are based on the SCS Method using runoff coefficients per the City of San Stormwater Technical Manual. Stormwater runoff from the proposed project can be characterized as overland, shallow-concentrated, and channelized flow from a proposed multi-family residential development.

ATTACHMENT J

BMPs FOR UPGRADIENT STORMWATER

No surface water, groundwater, or stormwater originates upgradient from the site and flows across the site.

ATTACHMENT K

BMPs FOR ON-SITE STORMWATER

Two (2) existing batch detention ponds, one (1) new batch pond, and one (1) engineered vegetative filter strip are proposed as the Permanent Best Management Practices (PBMPs) for this development. All PBMPs have been designed in accordance with the Texas Commission on Environmental Quality's (TCEQ) Technical Guidance Manual (TGM) RG-348 (2005) to remove 85% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT L

BMPs FOR SURFACE STREAMS

Two (2) existing batch detention ponds, one (1) new batch pond, and one (1) engineered vegetative filter strip are proposed as the Permanent Best Management Practices (PBMPs) for this development. All PBMPs have been designed in accordance with the Texas Commission on Environmental Quality's (TCEQ) Technical Guidance Manual (TGM) RG-348 (2005) to remove 85% of the increase in Total Suspended Solids (TSS) from the site.

ATTACHMENT M

Attachment M – Construction Plans

See attached drawing set for relevant construction plans and design drawings for Kissing Tree Phase 6E.

ATTACHMENT N

MAINTENANCE PROCEDURES FOR PERMANENT BMPs

Note: Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 3.5

A written record will be kept of inspection results and maintenance performed.

3.5.8 Vegetative Filter Strips

Once a vegetated area is well established, little additional maintenance is generally necessary. The key to establishing a viable vegetated feature is the care and maintenance it receives in the first few months after it is planted. Once established, all vegetated BMPs require some basic maintenance to insure the health of the plants including:

- *Pest Management*. An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

- *Seasonal Mowing and Lawn Care*. If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.

- *Inspection*. Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

- *Debris and Litter Removal*. Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.

- *Sediment Removal*. Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be

removed by hand or with flat-bottomed shovels. Inspections should be performed at least twice a year and after each rainfall event, with at least one biannual inspection to occur during or immediately after a rainfall event.

- *Grass Reseeding and Mulching*. A healthy dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Corrective maintenance, such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established. Inspections should be performed twice a year and after each rainfall event, with at least one biannual inspection to occur during or immediately after a rainfall event.

3.5.20 Batch Detention Basin

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

- *Inspections*. Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

- *Mowing*. The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

- *Litter and Debris Removal*. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable

debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

- *Erosion control*. The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

- *Nuisance Control*. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

- *Structural Repairs and Replacement*. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

- *Sediment Removal*. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

- *Logic Controller*. The Logic Controller should be inspected as part of the twice-yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

7/25/2023

Signature
Chad Matheson
Carma Paso Robles, LLC

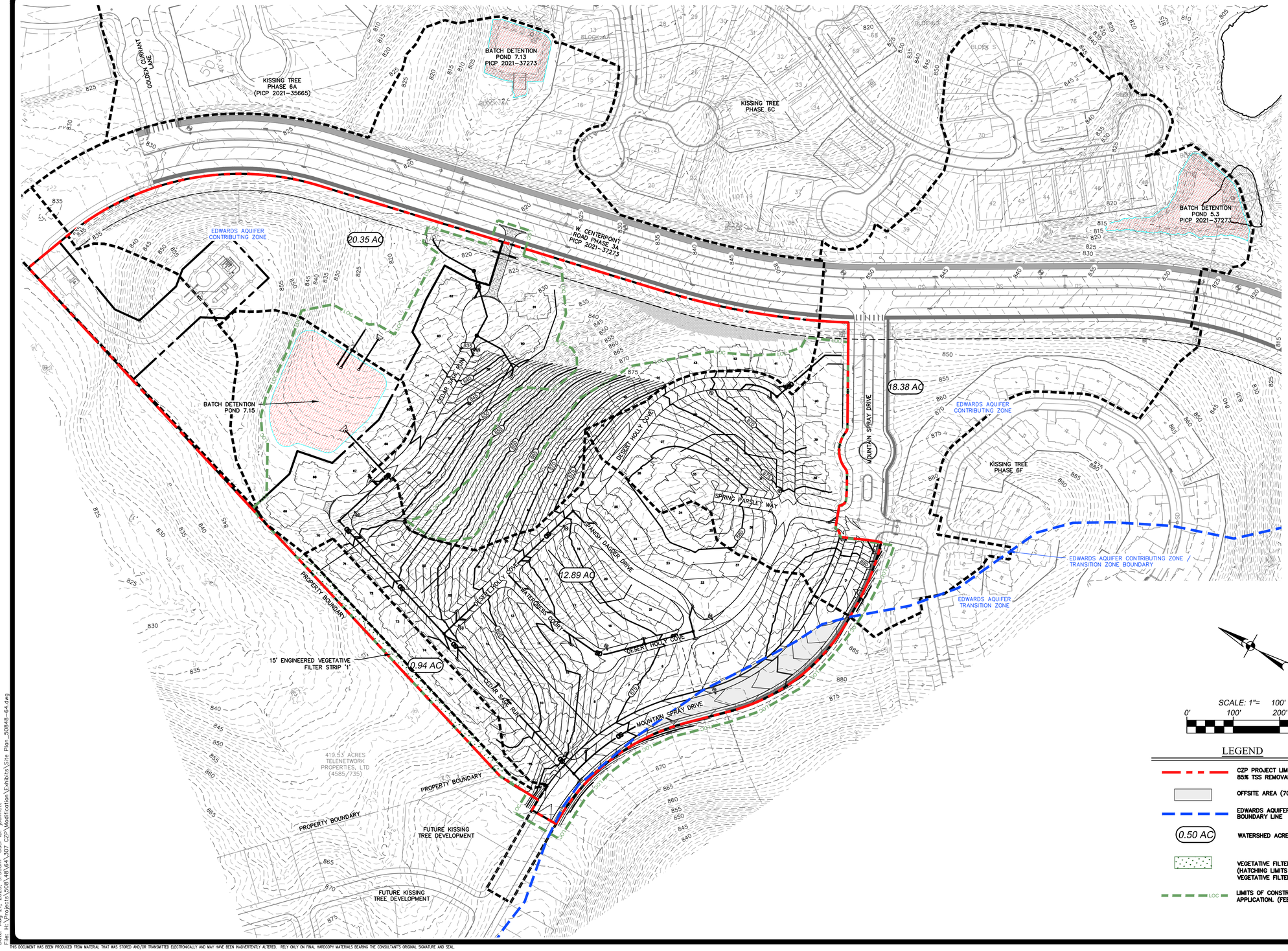
Date

ATTACHMENT P

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

At any points where discharge from the site is concentrated and erosive velocities exist, appropriately sized energy dissipators will be provided to reduce velocities to non-erosive levels.

SITE PLAN



NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
SITE PLAN

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 1 OF 1 OF 176

2023-XXXX

TEMPORARY STORMWATER SECTION

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Steven Crauford, P.E.

Date: 8/1/2023

Signature of Customer/Agent:

Regulated Entity Name: Kissing Tree Phase 6E

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☒ The following fuels and/or hazardous substances will be stored on the site: Diesel fuel, gasoline, etc.

   These fuels and/or hazardous substances will be stored in:

   ☒ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☐ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Cottonwood Creek, Willow Springs Creek

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

ATTACHMENT A

SPILL RESPONSE ACTIONS

In the event of an accidental leak or spill:

- Spill must be contained and cleaned up immediately.
- Spills will not be merely buried or washed with water.
- Contractor shall take action to contain spill. Contractor may use sand or other absorbent material stockpiled on site to absorb spill. Absorbent material should be spread over the spill area to absorb the spilled product.
- In the event of an uncontained discharge the contractor shall utilize onsite equipment to construct berms downgradient of the spill with sand or other absorbent material to contain and absorb the spilled product.
- Spill containment/absorbent materials along with impacted media must be collected and stored in such a way so as not to continue to affect additional media (soil/water). Once the spill has been contained, collected material should be placed on poly or plastic sheeting until removed from the site. The impacted media and cleanup materials should be covered with plastic sheeting and the edges weighed down with paving bricks or other similarly dense objects as the material is being accumulated. This will prevent the impacted media and cleanup materials from becoming airborne in windy conditions or impacting runoff during a rain event. The stockpiled materials should not be located within an area of concentrated runoff such as along a curb line or within a swale.
- Contaminated soils and cleanup materials will be sampled for waste characterization. When the analysis results are known the contaminated soils and cleanup materials will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.
- The contractor will be required to notify the owner, who will in turn contact TCEQ to notify them in the event of a significant hazardous/reportable quantity spill. Additional notifications as required by the type and amount of spill will be conducted by owner or owner's representative.

In the event of an accidental significant or hazardous spill:

- The contractor will be required to report significant or hazardous spills in reportable quantities as soon as possible and within 24 hours to:
  - the National Response Center at (800) 424-8802
  - the Edwards Aquifer Authority at (210) 222-2204
  - the TCEQ Regional Office (512) 339-2929 (if during business hours: 8 AM to 5 PM) or
  - the State Emergency Response Center (800) 832-8224 (if after hours)
  - reportable quantities can be found at the following link: https://www.tceq.texas.gov/response/spills/spill_rq.html

- Contaminated soils will be sampled for waste characterization. When the analysis results are known the contaminated soils will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.

Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 1.4.16. Contractor shall review this section.

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

Potential Source
- Asphalt products used on this project.

Preventative Measure
- After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain.

Potential Source
- Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping.

Preventative Measure
- Vehicle maintenance when possible will be performed within the construction staging area.
- Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.

Potential Source
- Accidental leaks or spills of oil, petroleum products and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site.

Preventative Measure
- Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures.
- Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures.
- Hazardous materials and wastes shall be stored in covered containers and protected from vandalism.
- A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible.

Potential Source
- Miscellaneous trash and litter from construction workers and material wrappings.

Preventive Measure
- Trash containers will be placed throughout the site to encourage proper trash disposal.

Potential Source
- Construction debris.

Preventive Measure
- Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis.

Potential Source
- Spills/Overflow of waste from portable toilets

Preventative Measure
- Portable toilets will be placed away from high traffic vehicular areas and storm drain inlets.
- Portable toilets will be placed on a level ground surface.
- Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

The sequence of major activities which disturb soil during construction on this site are listed below.

1) Set erosion controls – 3,867 LF of silt fence and 68 LF of rock berm
2) Clear and grub – 20.94 acres
3) Pond excavation – 1.12 acres – Batch Detention Pond 7.15 to be used as a Temporary Sediment Basin
4) Rough grade roadway – 3.69 acres
5) Rough grade lots – 16.13 acres
6) Trench utilities – 12,160 LF
7) Install water, wastewater, and storm – 12,160 LF
8) Install sub base/base for road/parking areas – 4.31 acres
9) Pave roadway/parking areas – 3.17 acres
10) Pond Completion – 1.12 acres
11) Site cleanup – 20.94 acres
12) Remove erosion controls – 3,867 LF of silt fence and 68 LF of rock berm

ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

Please see the Erosion Control sheets included in the Construction Plans Section for TBMP layout and the responses below for more details.

Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include: (1) erection of silt fences along the downgradient boundary of construction activities for temporary erosion and sedimentation controls, (2) installation of rock berms downgradient from areas of concentrated stormwater flow for temporary erosion control, (3) installation of stabilized construction entrance/exit(s) to reduce the dispersion of sediment from the site, (4) installation of construction staging area(s), and (5) construction of temporary sediment basins.

Prior to the initiation of construction, all previously installed control measures will be repaired or reestablished for their designed or intended purpose. This work, which is the remainder of all activity on the project, may also disturb additional soil. The construction contractor will be responsible for the installation of all remaining on-site control measures that includes installation of the concrete truck washout pit(s), as construction phasing warrants.

Inlet protection will be installed and utilized to reduce the dispersion of sediment from entering the storm sewer system during construction activities.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter the aquifer, surface streams and/or sensitive features that may exist downstream of the site.

BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site. Features discovered during construction will be reported and assessed in accordance with applicable regulations.

ATTACHMENT F

STRUCTURAL PRACTICES

The following structural measures will be installed prior to the initiation of site preparation activities:

- Erection of silt fences along the downgradient boundary of construction activities and rock berms for secondary protection, as located on the Erosion Control Plan sheets and illustrated on the Construction Details - Erosion Control sheet.
- Installation of stabilized construction entrance/exit(s) and construction staging area(s), as located on the Erosion Control Plan sheets and illustrated on the Construction Details - Erosion Control sheet.

The following structural measures will be installed at the initiation of construction activities or as appropriate based on the construction sequencing:

- Installation of inlet protection, as required and located on the Erosion Control Plan sheets and illustrated on the Construction Details - Erosion Control sheet.
- Installation of concrete truck washout pit(s), as required and located on the Erosion Control Plan sheets and illustrated on the Construction Details - Erosion Control sheet.
- Installation of rock berm, as required and located on the Erosion Control Plan sheets and illustrated on the Construction Details – Erosion Control sheet

ATTACHMENT G

DRAINAGE AREA MAP

No more than 10 acres will be disturbed within a common drainage area at one time. All TBMP's utilized are adequate for the drainage areas served.

Paso Robles, Phase 6E: Water Quality Treatment Summary

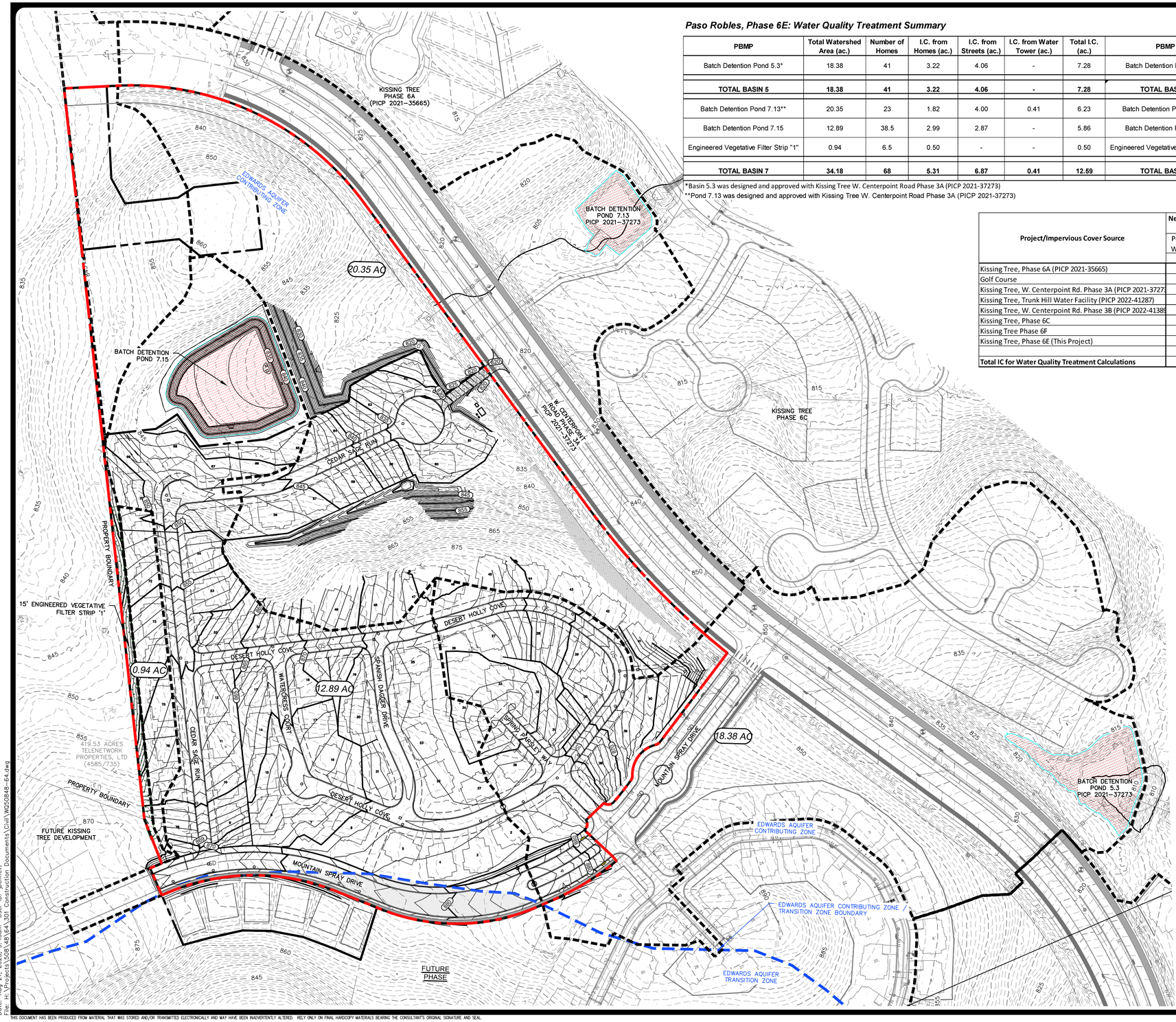
PBMP	Total Watershed Area (ac.)	Number of Homes	I.C. from Homes (ac.)	I.C. from Streets (ac.)	I.C. from Water Tower (ac.)	Total I.C. (ac.)	PBMP	70% TSS Removal Required (lb.)	85% TSS Removal Required (lb.)	Total TSS Removal Required (lb.)	TSS Removal Provided (lb.)
Batch Detention Pond 5.3*	18.38	41	3.22	4.06	-	7.28	Batch Detention Pond 5.3*	-	6,943	6,943	7,085
TOTAL BASIN 5	**18.38**	**41**	**3.22**	**4.06**	**-**	**7.28**	**TOTAL BASIN 5**	**-**	**6,943**	**6,943**	**7,085**
Batch Detention Pond 7.13**	20.35	23	1.82	4.00	0.41	6.23	Batch Detention Pond 7.13**	-	5,942	5,942	6,132
Batch Detention Pond 7.15	12.89	38.5	2.99	2.87	-	5.86	Batch Detention Pond 7.15	377	5,131	5,508	5,923
Engineered Vegetative Filter Strip "1"	0.94	6.5	0.50	-	-	0.50	Engineered Vegetative Filter Strip "1"	-	477	477	492
TOTAL BASIN 7	**34.18**	**68**	**5.31**	**6.87**	**0.41**	**12.59**	**TOTAL BASIN 7**	**377**	**11,549**	**11,927**	**12,547**

*Basin 5.3 was designed and approved with Kissing Tree W. Centerpoint Road Phase 3A (PICP 2021-37273)
**Pond 7.13 was designed and approved with Kissing Tree W. Centerpoint Road Phase 3A (PICP 2021-37273)

Project/Impervious Cover Source	Net Impervious Cover Treated in Pond 5.3 Permitted with Kissing Tree, W. Centerpoint Rd. Phase 3A (PICP 2021-37273)	Net Impervious Cover Treated in Pond 7.13 Permitted with Kissing Tree, W. Centerpoint Rd. Phase 3A (PICP 2021-37273)	Net Impervious Cover Treated in Pond 7.15 Proposed With Kissing Tree, Phase 6E (This Project) (PICP 2023-XXXXX)
Kissing Tree, Phase 6A (PICP 2021-35665)	-	-	-
Golf Course	-	-	-
Kissing Tree, W. Centerpoint Rd. Phase 3A (PICP 2021-37273	0.71	1.52	-
Kissing Tree, Trunk Hill Water Facility (PICP 2022-41287)	-	0.405	-
Kissing Tree, W. Centerpoint Rd. Phase 3B (PICP 2022-41389	0.63	1.79	-
Kissing Tree, Phase 6C	2.13	0.43	-
Kissing Tree Phase 6F	1.69	-	-
Kissing Tree, Phase 6E (This Project)	2.12	2.08	5.86
Total IC for Water Quality Treatment Calculations	7.28	6.23	5.86

WATER QUALITY POND VOLUME SUMMARY

POND	VOLUME REQUIRED (CF)	VOLUME PROVIDED (CF)
POND 5.3	43,955	44,038
POND 7.13	43,465	45,265
POND 7.15	48,706	49,456



SCALE: 1"= 100'
0' 100' 200' 300'

LEGEND

- CZP PROJECT LIMITS (33.571 ACRES – 85% TSS REMOVAL)
- 70% TSS REMOVAL
- EDWARDS AQUIFER RECHARGE ZONE BOUNDARY LINE
- (0.50 AC) WATERSHED ACREAGE
- VEGETATIVE FILTER STRIP (HATCHING LIMITS TO BE DEFINED VEGETATIVE FILTER STRIP EASEMENT)

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
WATER QUALITY TREATMENT SUMMARY 1 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 39 OF 76

Date: Aug 21, 2023, 9:43am User ID: jbennett
File: H:\Projects\50848\48\64_30\Construction Documents\Civil\W050848-64.dwg

2023-XXXX

ENGINEERED VEGETATIVE FILTER STRIP "1"

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 6/26/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = Engineered VFS "1"

Total drainage basin/outfall area =	0.94	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.50	acres
Post-development impervious fraction within drainage basin/outfall area =	0.53	
$L_{M\ THIS\ BASIN}$ =	477	lbs. ADJUSTED FOR 85% TSS REMOVAL AND NOT 80%

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.94	acres
A_I =	0.50	acres
A_P =	0.44	acres
L_R =	492	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 492 lbs.

F = 1.00

BATCH POND 7.13

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 6/26/2023

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1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 7.13

Total drainage basin/outfall area =	20.35	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	6.23	acres
Post-development impervious fraction within drainage basin/outfall area =	0.31	
$L_{M\ THIS\ BASIN}$ =	5942	lbs. ADJUSTED FOR 85% TSS REMOVAL AND NOT 80%

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	20.35	acres
A_I =	6.23	acres
A_P =	14.12	acres
L_R =	6702	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 6132 lbs.

F = 0.91

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.26	
On-site Water Quality Volume =	34741	cubic feet

Calculations from RG-348 — Pages 3-36 to 3-37

Off-site area draining to BMP =	11.33	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	1481	cubic feet
Storage for Sediment =	7244	
Total Capture Volume (required water quality volume(s) x 1.20) =	43465	cubic feet

BATCH POND 5.3

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Phase 6E
Date Prepared: 6/7/2023

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1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal result
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 5.3

Total drainage basin/outfall area =	18.38	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.28	acres 48% IMPERVIOUS COVER
Post-development impervious fraction within drainage basin/outfall area =	0.40	
$L_{M\ THIS\ BASIN}$ =	6943	lbs. ADJUSTED FOR 85% TSS REMOVAL AND NOT 80%

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	18.38	acres
A_I =	7.28	acres
A_P =	11.10	acres
L_R =	7744	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 7085 lbs.

F = 0.91

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.31	
On-site Water Quality Volume =	36629	cubic feet

Calculations from RG-348 — Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	7326	
Total Capture Volume (required water quality volume(s) x 1.20) =	43955	cubic feet

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
WATER QUALITY TREATMENT
SUMMARY 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 40 OF 76

2023-XXXX

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 7/26/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the pla* =	10.62	acres
Total post-development impervious cover fraction* =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	9533	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 0

2. Drainage Basin Parameters (This information should be provided for each basin

Drainage Basin/Outfall Area No. = 7.15

Total drainage basin/outfall area=	12.89	acres	
Predevelopment impervious area within drainage basin/outfall are =	0.00	acres	
Post-development impervious area within drainage basin/outfall are =	5.86	acres	5.08 ac of IC treated to 80% TSS Removal & 0.55 ac treated to 70% removal
Post-development impervious fraction within drainage basin/outfall are =	0.45		
$L_{M\ THIS\ BASIN}$ =	4829	lbs.	ADJUSTED FOR 80% TSS REMOVAL
	377		ADJUSTED FOR 70% TSS REMOVAL
	5206		TOTAL TSS REMOVAL

3. Indicate the proposed BMP Code for this basin

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

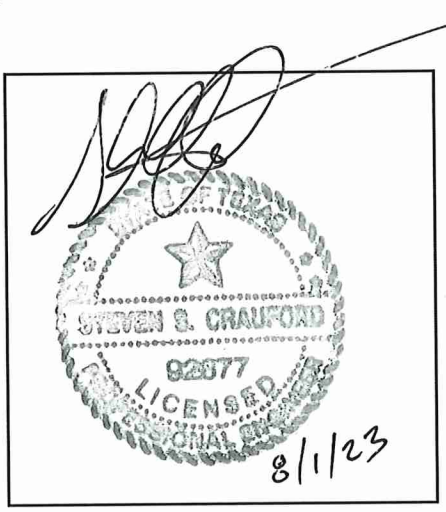
4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	12.89	acres
A_I =	5.86	acres
A_P =	7.03	acres
L_R =	6203	lbs



Pape-Dawson Engineers, Inc.
Texas Engineering Firm #470

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall are

Desired $L_{M\ THIS\ BASIN}$ = 5923 lbs.

F = 0.95

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	2.60	inches
Post Development Runoff Coefficient =	0.33	
On-site Water Quality Volume =	40589	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	8118	
Total Capture Volume (required water quality volume(s) x 1.20) =	48706	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Phase 6E
Date Prepared: 7/26/2023

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1. The Required Load Reduction for the total project

Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plar* =	0.00	acres
Total post-development impervious area within the limits of the pla* =	10.62	acres
Total post-development impervious cover fraction* =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	9533	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 0

2. Drainage Basin Parameters (This information should be provided for each basin

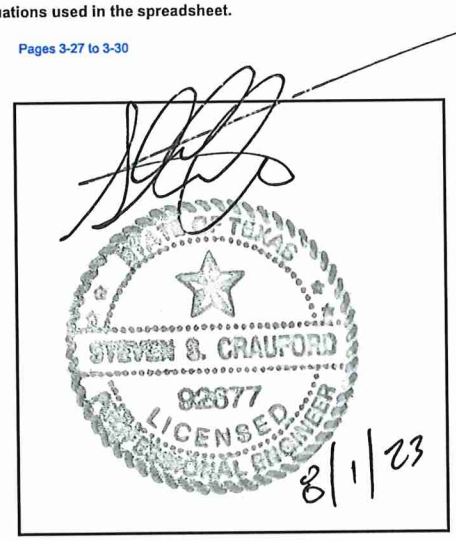
Drainage Basin/Outfall Area No. = 5.3

Total drainage basin/outfall area=	18.38	acres
Predevelopment impervious area within drainage basin/outfall are =	0.00	acres
Post-development impervious area within drainage basin/outfall are =	7.28	acres
Post-development impervious fraction within drainage basin/outfall are =	0.40	
$L_{M\ THIS\ BASIN}$ =	6535	lbs.

3. Indicate the proposed BMP Code for this basin

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault



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4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	18.38	acres
A_I =	7.28	acres
A_P =	11.10	acres
L_R =	7744	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall are

Desired $L_{M\ THIS\ BASIN}$ = 7085 lbs.

F = 0.91

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall are

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.31	
On-site Water Quality Volume =	36629	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	7326	
Total Capture Volume (required water quality volume(s) x 1.20) =	43955	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 7/26/2023

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1. The Required Load Reduction for the total project Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the pla* =	0.00	acres
Total post-development impervious area within the limits of the pla* =	10.62	acres
Total post-development impervious cover fraction* =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	9533	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 0

2. Drainage Basin Parameters (This information should be provided for each basin)

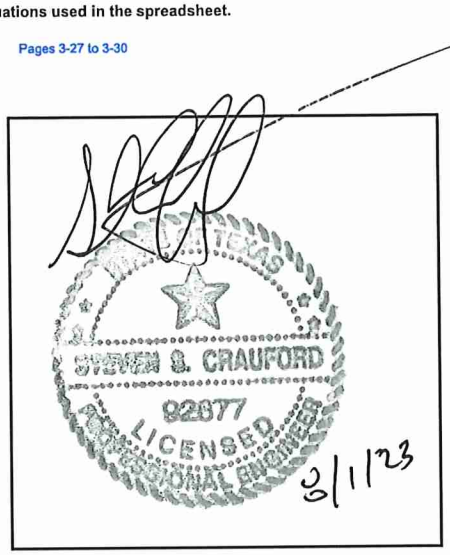
Drainage Basin/Outfall Area No. = 7.13

Total drainage basin/outfall area=	20.35	acres
Predevelopment impervious area within drainage basin/outfall are =	0.00	acres
Post-development impervious area within drainage basin/outfall are =	6.23	acres
Post-development impervious fraction within drainage basin/outfall are =	0.31	
$L_{M\ THIS\ BASIN}$ =	5592	lbs.

3. Indicate the proposed BMP Code for this basin

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault



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Texas Engineering Firm #470

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	20.35	acres
A_I =	6.23	acres
A_P =	14.12	acres
L_R =	6702	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall are

Desired $L_{M\ THIS\ BASIN}$ = 6132 lbs.

F = 0.91

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall are Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.26	
On-site Water Quality Volume =	34741	cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP =	11.33	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	1481	cubic feet
Storage for Sediment =	7244	
Total Capture Volume (required water quality volume(s) x 1.20) =	43465	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 7/26/2023

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

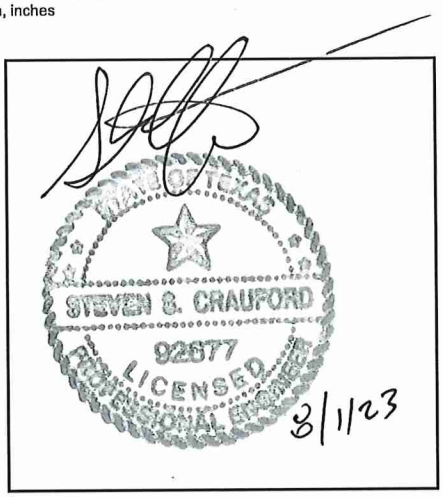
where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal result
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	9533	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 0



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Texas Engineering Firm #470

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = Engineered VFS "1"

Total drainage basin/outfall area =	0.94	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.50	acres
Post-development impervious fraction within drainage basin/outfall area =	0.53	
$L_{M\ THIS\ BASIN}$ =	449	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.94	acres
A_I =	0.50	acres
A_P =	0.44	acres
L_R =	492	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 492 lbs.

F = 1.00

ATTACHMENT I

INSPECTIONS & MAINTENANCE

Designated and qualified person(s) shall inspect Pollution Control Measures weekly and within 24 hours after a storm event. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection will be recorded and maintained as part of Storm Water TPDES data for a period of three years after the Notice of Termination (NOT) has been filed. A copy of the Inspection Report Form is provided in this Storm Water Pollution Prevention Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, (6) concrete truck rinse-out pit for signs of potential failure, (7) embankment, spillways, and outlet of sediment basin (where applicable) for erosion damage, and (8) sediment basins (where applicable) for evidence that basin has accumulated 50% of its volume in silt. Deficiencies noted during the inspection will be corrected and documented within seven calendar days following the inspection or before the next anticipated storm event if practicable. Temporary sediment basins and permanent basins will be inspected until final stabilization of 70% within the basin watershed is achieved.

BMP inspection and maintenance requirements from sections 1.3 and 1.4 of TCEQ's Technical Guidance Manual are detailed below.

Temporary Construction Entrance/Exit

- The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
- When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
- When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

Silt Fence

- Inspect all fencing weekly, and after any rainfall.
- Remove sediment when buildup reaches 6 inches.
- Replace any torn fabric or install a second line of fencing parallel to the torn section.
- Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.

- When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

Rock Berms

- Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.
- Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
- Repair any loose wire sheathing.
- The berm should be reshaped as needed during inspection.
- The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
- The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

Inlet Protection

- Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
- Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
- Check placement of device to prevent gaps between device and curb.
- Inspect filter fabric and patch or replace if torn or missing. 1-100
- Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

Sediment Basins

- Inspection should be made weekly and after each rainfall. Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Repair should be made promptly as needed by the contractor.
- Trash and other debris should be removed after each rainfall to prevent clogging of the outlet structure.
- Accumulated silt should be removed and the basin should be re-graded to its original dimensions at such point that the capacity if the impoundment has been reduced to 75% of its original storage capacity.
- The removed sediment should be stockpiled or redistributed in areas that are protected from erosion.

Pollution Prevention Measure	Inspected in Compliance	Corrective Action Required	
		Description (use additional sheet if necessary)	**Date Completed**
Best Management Practices			
Natural vegetation buffer strips			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Silt fences			
Rock berms			
Gravel filter bags			
Drain inlet protection			
Other structural controls			
Vehicle exits (off-site tracking)			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Concrete washout pit (leaks, failure)			
General site cleanliness			
Trash receptacles			
Evidence of Erosion			
Site preparation			
Roadway or parking lot construction			
Utility construction			
Drainage construction			
Building construction			
Major Observations			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

_____ A brief statement describing the qualifications of the inspector is included in this SWP3.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I further certify I am an authorized signatory in accordance with the provisions of 30 TAC §305.128."

Inspector's Name _____ Inspector's Signature _____ Date _____

PROJECT MILESTONE DATES

Date when major site grading activities begin:

Construction Activity	Date
Installation of BMPs	

Dates when construction activities temporarily or permanently cease on all or a portion of the project:

Construction Activity	Date

Dates when stabilization measures are initiated:

Stabilization Activity	Date
Removal of BMPs	

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Interim on-site stabilization measures, which are continuous, will include minimizing soil disturbances by exposing the smallest practical area of land required for the shortest period of time and maximizing use of natural vegetation. As soon as practical, all disturbed soil will be stabilized via permanent revegetation. Details, such as installation, irrigation, and maintenance are provided below.

Installation:

- Final grading must be completed prior to seeding, minimizing all steep slopes. In addition, all necessary erosion structures such as dikes, swales, diversions, should also be installed.
- Seedbed should be well pulverized, loose, and uniform.
- Fertilizer should be applied at the rate of 40 pounds of nitrogen and 40 pounds of phosphorus per acre, which is equivalent to about 1.0 pounds of nitrogen and phosphorus per 1000 square feet. Compost can be used instead of fertilizer and applied at the same time as the seed.

Irrigation:

- Temporary irrigation should be provided according to the schedule described below, or to replace moisture loss to evapotranspiration (ET), whichever is greater. Significant rainfall (on-site rainfall of ½" or greater) may allow watering to be postponed until the next scheduled irrigation.

Time Period	Irrigation Amount and Frequency
Within 2 hours of installation	Irrigate entire root depth, or to germinate seed
During the next 10 business days	Irrigate entire root depth every Monday, Wednesday, and Friday
During the next 30 business days or until Substantial Completion	Irrigate entire root depth a minimum of once per week, or as necessary to ensure vigorous growth
During the next 4 months or until Final Acceptance of the Project	Irrigate entire root depth once every two weeks, or as necessary to ensure vigorous growth

Inspection and Maintenance Guidelines:

- Permanent vegetation should be inspected weekly and after each rain event to locate and repair any erosion.
- Erosion from storms or other damage should be repaired as soon as practical by regrading the area and applying new seed.
- If the vegetated cover is less than 80%, the area should be reseeded.

Stabilization measures will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided below, will be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

NOTICE OF INTENT

TCEQ Office Use Only
Permit No:
CN:
RN:

Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly. **Incomplete applications delay approval or result in automatic denial.**

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: https://www3.tceq.texas.gov/steers/index.cfm

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is $325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is $225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: http://www.tceq.texas.gov/epay.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
  - Check/Money Order Number: Click here to enter text
  - Name printed on Check: Click here to enter text
- If payment was made via ePay, provide the following:
  - Voucher Number: Click here to enter text
  - A copy of the payment voucher is attached to this paper NOI form.

RENEWAL (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? ☐ Yes ☒ No

If Yes, provide the authorization number here: TXR15 Click here to enter text.

NOTE: If an authorization number is not provided, a new number will be assigned.

SECTION 1. OPERATOR (APPLICANT)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN 603437310

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

Carma Paso Robles, LLC

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss): Mr.

First and Last Name: Chad Matheson Suffix: Click here to enter text.

Title: Vice President Credentials: Click here to enter text.

Phone Number: (512) 391-1343 Fax Number: Click here to enter text.

E-mail: chad.matheson@brookfieldpropertiesdevelopment.com

Mailing Address: 9600 N Mopac Expy, Suite 750

City, State, and Zip Code: Austin, TX 78758

Mailing Information if outside USA:

Territory: Click here to enter text.

Country Code: Click here to enter text. Postal Code: Click here to enter text.

d) Indicate the type of customer:

☐ Individual	☐ Federal Government
☐ Limited Partnership	☐ County Government
☐ General Partnership	☐ State Government
☐ Trust	☐ City Government
☐ Sole Proprietorship (D.B.A.)	☐ Other Government
☒ Corporation	☐ Other: Click here to enter text.
☐ Estate	

e) Is the applicant an independent operator? ☐ Yes ☒ No

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

☐ 0-20
☐ 21-100
☐ 101-250
☐ 251-500
☒ 501 or higher

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number: Click here to enter text.

Federal Tax ID: Click here to enter text.

Texas Secretary of State Charter (filing) Number: Click here to enter text.

DUNS Number (if known): Click here to enter text.

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3

☒ No, complete this section

Prefix (Mr. Ms. Miss): Mr.

First and Last Name: Steven Crauford, P.E. Suffix: Click here to enter text.

Title: Vice President Credential: Click here to enter text.

Organization Name: Pape-Dawson Engineers, Inc.

Phone Number: (512)454-8711 Fax Number: Click here to enter text.

E-mail: scrauford@pape-dawson.com

Mailing Address: 10801 N Mopac Expy, Bldg 3, Ste 200

Internal Routing (Mail Code, Etc.): Click here to enter text.

City, State, and Zip Code: Austin, TX 78759

Mailing information if outside USA:

Territory: Click here to enter text.

Country Code: Click here to enter text. Postal Code: Click here to enter text.

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN Click here to enter text.

(Refer to Section 3.a) of the Instructions)

b) Name of project or site (the name known by the community where it's located): Kissing Tree

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Construction of public right-of-way and associated civil infrastructure.

d) County or Counties (if located in more than one): Hays

e) Latitude: 29.843300 Longitude: -98.002307

f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name: Click here to enter text

City, State, and Zip Code: Click here to enter text

Section B:

Location Description: Approx. 200 LF N of Blushing Aster Drive and W Centerpoint Road

City (or city nearest to) where the site is located: San Marcos, Texas

Zip Code where the site is located: 78666

SECTION 4. GENERAL CHARACTERISTICS

a) Is the project or site located on Indian Country Lands?

☐ Yes, do not submit this form. You must obtain authorization through EPA Region 6.

☒ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? **1611**

d) What is the Secondary SIC Code(s), if applicable? Click here to enter text

e) What is the total number of acres to be disturbed? 8.467

f) Is the project part of a larger common plan of development or sale?

☐ Yes

☒ No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project? December 2023

h) What is the estimated end date of the project? June 2024

i) Will concrete truck washout be performed at the site? ☒ Yes ☐ No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? Cottonwood Creek, Willow Springs Creek

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? Click here to enter text

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

☒ Yes ☐ No

If Yes, provide the name of the MS4 operator: City of San Marcos

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

☒ Yes, complete the certification below.

☐ No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. ☒ Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☒ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☒ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☒ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). ☒ Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: Steve Crauford, P.E.

Operator Signatory Title: Vice President

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: 8/1/23

NOTICE OF INTENT CHECKLIST (TXR150000)

Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Confirm each item (or applicable item) in this form is complete. This checklist is for use by the applicant to ensure a complete application is being submitted. **Missing information may result in denial of coverage under the general permit.** (See NOI process description in the General Information and Instructions.)

APPLICATION FEE

If paying by check:

☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)

☐ Check number and name on check is provided in this application.

If using ePay:

☐ The voucher number is provided in this application and a copy of the voucher is attached.

RENEWAL

☐ If this application is for renewal of an existing authorization, the authorization number is provided.

OPERATOR INFORMATION

☒ Customer Number (CN) issued by TCEQ Central Registry

☒ Legal name as filed to do business in Texas. (Call TX SOS 512-463-5555 to verify.)

☒ Name and title of responsible authority signing the application.

☒ Phone number and e-mail address

☒ Mailing address is complete & verifiable with USPS. www.usps.com

☒ Type of operator (entity type). Is applicant an independent operator?

☒ Number of employees.

☒ For corporations or limited partnerships – Tax ID and SOS filing numbers.

☒ Application contact and address is complete & verifiable with USPS. http://www.usps.com

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

☐ Regulated Entity Number (RN) (if site is already regulated by TCEQ)

☒ Site/project name and construction activity description

☒ County

☒ Latitude and longitude http://www.tceq.texas.gov/gis/sqmaview.html

☒ Site Address/Location. Do not use a rural route or post office box.

GENERAL CHARACTERISTICS

☒ Indian Country Lands –the facility is not on Indian Country Lands.

☒ Construction activity related to facility associated to oil, gas, or geothermal resources

☒ Primary SIC Code that best describes the construction activity being conducted at the site. www.osha.gov/oshstats/sicser.html

☒ Estimated starting and ending dates of the project.

☒ Confirmation of concrete truck washout.

☒ Acres disturbed is provided and qualifies for coverage through a NOI.

☒ Common plan of development or sale.

☒ Receiving water body or water bodies.

☒ Segment number or numbers.

☒ MS4 operator.

☒ Edwards Aquifer rule.

CERTIFICATION

☐ Certification statements have been checked indicating Yes.

☐ Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original.

Instructions for Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

By Regular Mail:
TCEQ
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711-3087

By Overnight or Express Mail:
TCEQ
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX

Application Fee:

The application fee of $325 is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit. Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Mailed Payments:

Use the attached General Permit Payment Submittal Form. The application fee is submitted to a different address than the NOI. Read the General Permit Payment Submittal Form for further instructions, including the address to send the payment.

ePAY Electronic Payment: http://www.tceq.texas.gov/epay

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

TCEQ Contact List:

Application – status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

- **Administrative Review**: Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(es) on the form must be verified with the US Postal service as receiving regular mail delivery. Do not give an overnight/express mailing address.

- **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.
- **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

  or

  Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site http://www.tceq.texas.gov. Search using keyword TXR150000.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated project or site changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number, if one has not already been assigned to this customer or site.

For existing customers and sites, you can find the Customer Number and Regulated Entity Number by entering the following web address into your internet browser: http://www15.tceq.texas.gov/crpub/ or you can contact the TCEQ Stormwater Processing Center at 512-239-3700 for assistance. On the website, you can search by your permit number, the Regulated Entity (RN) number, or the Customer Number (CN). If you do not know these numbers, you can select “Advanced Search” to search by permittee name, site address, etc.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For this permit, a Notice of Change form must be submitted to the program area.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied, a new permit number will be issued.

Section 1. OPERATOR (APPLICANT)

a) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number**.

If the applicant is an existing TCEQ customer, the Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the applicant is not an existing TCEQ customer, leave the space for CN blank.

b) Legal Name of Applicant

Provide the current legal name of the applicant. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, as filed in the county. You may contact the SOS at 512-463-5555, for more information related to filing in Texas. If filed in the county, provide a copy of the legal documents showing the legal name.

c) Contact Information for the Applicant (Responsible Authority)

Provide information for the person signing the application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: https://tools.usps.com/go/ZipLookupAction!input.action.

The phone number should provide contact to the applicant.

The fax number and e-mail address are optional and should correspond to the applicant.

d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for an authorization.

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). If the customer is a 'General Partnership' or 'Joint Venture' filed in the county (not filed with TX SOS), the legal name of each partner forming the 'General Partnership' or 'Joint Venture' must be provided. Each 'legal entity' must apply as a co-applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Sole Proprietorship (DBA)

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

1. be under the person's name
2. have its own name (doing business as or DBA)
3. have any number of employees.

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Corporation

A customer that meets all of these conditions:

1. is a legally incorporated entity under the laws of any state or country
2. is recognized as a corporation by the Texas Secretary of State
3. has proper operating authority to operate in Texas

The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization is not recognized as the 'legal name'.

Other

This may include a utility district, water district, tribal government, college district, council of governments, or river authority. Provide the specific type of government.

e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter the Tax ID number.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512-463-5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

Section 2. APPLICATION CONTACT

Provide the name and contact information for the person that TCEQ can contact for additional information regarding this application.

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) Regulated Entity Number (RN)

The RN is issued by TCEQ's Central Registry to sites where an activity is regulated by TCEQ. This is not a permit number, registration number, or license number. Search TCEQ's Central Registry to see if the site has an assigned RN at http://www15.tceq.texas.gov/crpub/. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, an RN may already be assigned for the larger site. Use the RN assigned for the larger site.

If the site is found, provide the assigned RN and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Name of the Project or Site

Provide the name of the site or project as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Provide the name of the county where the site or project is located. If the site or project is located in more than one county, provide the county names as secondary.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to: http://www.tceq.texas.gov/gis/sqmaview.html.

f) Site Address/Location

If a site has an address that includes a street number and street name, enter the complete address for the site in *Section A*. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street number and street name, provide a complete written location description in *Section B.* For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and zip code of the site location.

Section 4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas (RRC) and may need to obtain authorization from EPA Region 6.

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a

carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the RRC's jurisdiction must be authorized by the EPA and the RRC, as applicable. Activities under RRC jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the RRC; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The RRC also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the RRC. Under 33 U.S.C. §1342(l)(2) and §1362(24), EPA cannot require a permit for discharges of stormwater from field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under §3.8 of this title (relating to Water Protection), the RRC prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

For more information about the jurisdictions of the RRC and the TCEQ, read the Memorandum of Understanding (MOU) between the RRC and TCEQ at 16 Texas Administrative Code, Part 1, Chapter 3, Rule 3.30, by entering the following link into an internet browser: http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30 or contact the TCEQ Stormwater Team at 512-239-4671 for additional information.

c) Primary Standard Industrial Classification (SIC) Code

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Buildings Other than Single Family Homes
- 1541 - Construction of Industrial Buildings and Warehouses

- 1542 - Construction of Non-residential Buildings, other than Industrial Buildings and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, enter the following link into your internet browser: http://www.osha.gov/pls/imis/sicsearch.html or you can contact the TCEQ Small Business and Local Government Assistance Section at 800-447-2827 for assistance.

d) Secondary SIC Code

Secondary SIC Code(s) may be provided. Leave this blank if not applicable. For help with SIC Codes, enter the following link into your internet browser: http://www.osha.gov/pls/imis/sicsearch.html or you can contact the TCEQ Small Business and Environmental Assistance Section at 800-447-2827 for assistance.

e) Total Number of Acres Disturbed

Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at 512-239-4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development

Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on what a common plan of development is, refer to the definition of "Common Plan of Development" in the Definitions section of the general permit or enter the following link into your internet browser: www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage enter the following link into your internet browser: www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If you have any further questions about the Common Plan of Development you can contact the TCEQ Stormwater Team at 512-239-4671 or the TCEQ Small Business and Environmental Assistance at 800-447-2827.

g) Estimated Start Date of the Project

This is the date that any construction activity or construction support activity is initiated at the site. If renewing the permit provide the original start date of when construction activity for this project began.

h) Estimated End Date of the Project

This is the date that any construction activity or construction support activity will end and final stabilization will be achieved at the site.

i) Will concrete truck washout be performed at the site?

Indicate if you expect that operators of concrete trucks will washout concrete trucks at the construction site.

j) Identify the water body(s) receiving stormwater runoff

The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

k) Identify the segment number(s) of the classified water body(s)

Identify the classified segment number(s) receiving a discharge directly or indirectly. Enter the following link into your internet browser to find the segment number of the classified water body where stormwater will flow from the site: www.tceq.texas.gov/waterquality/monitoring/viewer.html or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

You may also find the segment number in TCEQ publication GI-316 by entering the following link into your internet browser: www.tceq.texas.gov/publications/gi/gi-316 or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at 512-239-4671 for further assistance.

l) Discharge into MS4 – Identify the MS4 Operator

The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a

copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at 512-239-4671.

m) Discharges to the Edwards Aquifer Recharge Zone and Certification

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer by entering the following link into an internet browser: www.tceq.texas.gov/field/eapp/viewer.html or by contacting the TCEQ Water Quality Division at 512-239-4671 for assistance.

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site-specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

Section 5. NOI CERTIFICATION

Note: Failure to indicate Yes to all of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. Electronic applications submitted through ePermits have immediate provisional coverage. You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site by entering the following link into an internet browser: www.tceq.texas.gov/goto/construction or you may contact the TCEQ Stormwater processing Center at 512-239-3700 for assistance.

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512-463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under the Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has

been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Section 6. APPLICANT CERTIFICATION SIGNATURE

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

If you are a corporation:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

If you are a municipality or other government entity:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the TCEQ's Environmental Law Division at 512-239-0600.

30 Texas Administrative Code

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the

corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality
General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

Instructions:

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- *Do not mail this form with your NOI form.*
- *Do not mail this form to the same address as your NOI.*

Mail this form and your check to either of the following:

By Regular U.S. Mail
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

By Overnight or Express Mail
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check or Money Order No: Click here to enter text
2. Amount of Check/Money Order: Click here to enter text
3. Date of Check or Money Order: Click here to enter text
4. Name on Check or Money Order: Click here to enter text
5. NOI Information:

   If the check is for more than one NOI, list each Project or Site (RE) Name and Physical Address exactly as provided on the NOI. **Do not submit a copy of the NOI with this form, as it could cause duplicate permit application entries!**

   If there is not enough space on the form to list all of the projects or sites the authorization will cover, then attach a list of the additional sites.

   Project/Site (RE) Name: Kissing Tree

   Project/Site (RE) Physical Address: Approximately 200 LF North of Blushing Aster Drive and W. Centerpoint Road

Staple the check or money order to this form in this space.

AGENT AUTHORIZATION FORM

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Chad Matheson,
Print Name

Vice President,
Title - Owner/President/Other

of Carma Paso Robles, LLC,
Corporation/Partnership/Entity Name

have authorized Steven Crauford, P.E.
Print Name of Agent/Engineer

of Pape-Dawson Engineers, Inc.
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

7/25/2023
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Chad Matheson known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 25th day of July, 2023

JENNIFER A. SHEESLEY
Notary Public, State of Texas
Comm. Expires 03-10-2025
Notary ID 128849950

NOTARY PUBLIC

Jennifer A. Sheesley
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 03·10·2025

APPLICATION FEE FORM

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Kissing Tree Phase 6E

Regulated Entity Location: 1600 LF N of Blushing Aster Drive and W. Centerpoint Road

Name of Customer: Carma Paso Robles, LLC

Contact Person: Chad Matheson Phone: (512) 391-1343

Customer Reference Number (if issued):CN 603437310

Regulated Entity Reference Number (if issued):RN 111587382

Austin Regional Office (3373)

☒ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to:

☒ Austin Regional Office

☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	*Size*	*Fee Due*
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	32.63 Acres	$ 6,500
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 8/ / /2023

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

CORE DATA FORM

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 603437310		RN 111587382

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) *If new Customer, enter previous Customer below:*

Carma Paso Robles, LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☐ Yes ☒ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address: 9600 N Mopac Expressway, Suite 750

City	State	ZIP	ZIP + 4
Austin	TX	78759	

16. Country Mailing Information *(if outside USA)* | **17. E-Mail Address** *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512) 391-1343		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name (*Enter name of the site where the regulated action is taking place.*)

Kissing Tree Phase 6E

23. Street Address of the Regulated Entity: *(No PO Boxes)*							
	City		State		ZIP		ZIP + 4	
24. County							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	200 LF N of Blushing Aster Drive and Centerpoint Road				
26. Nearest City			State	Nearest ZIP Code	
San Marcos			TX	78666	
27. Latitude (N) In Decimal:	29.8475		28. Longitude (W) In Decimal:	98.0047	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	50	50.99	98	0	16.91

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
1522			

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Multi-family residential subdivision

34. Mailing Address:	9600 N Mopac Expy, Suite 750							
	City	Austin	State	TX	ZIP	78758	ZIP + 4	3169
35. E-Mail Address:	chad.matheson@brookfieldpropertiesdevelopment.com							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(512) 391-1343		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Steven Crauford, P.E.	41. Title:	Vice President

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 454-8711		(512) 459-8867	scrauford@pape-dawson.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Pape-Dawson Engineers, Inc.	Job Title:	Vice President
Name *(In Print)*:	Steven Crauford, P.E.	Phone:	(512) 454- 8711
Signature:		Date:	8/1/23

CONSTRUCTION PLANS

CITY OF SAN MARCOS
DEVELOPMENT SERVICES
CONSTRUCTION REQUIREMENTS AND NOTES

Revised Date: **01-01-2022**

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 (5lbs).
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) 512-245-2508
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 Subgrade**	Per 100 LF Street per lift
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	Per 500 Tons or Day
Analysis	Per 500 Tons or Day
Lab Density & Stability	Per 500 Tons or Day
Theoretical Density (Rice Method)	Continuous as Needed
Temperature -During Lay-Down	Per 300 LF Street
Thickness - In Place	Per 300 LF Street
%Air Voids-In Place	Per 300 LF Street
% Theoretical Density - In Place	
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.

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
GENERAL NOTES 1 OF 3

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 02 OF 76

Date: Aug 21, 2023, 9:23am User ID: jennet
File: H:\Projects\50K\48\64_301 Construction Documents\Civil\CN50848-64.dwg

2023-XXXX

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 - *The requirements stated in most current version of the Water Distribution System Design Criteria Technical Manual shall supersede these notes if they conflict.*

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).

Use	Pipe Material	[1]Pipe Sizes	[2]SPL
Service lines	Copper Tubing	1"	WW-613
Service lines	Polyethylene Tubing	1"	WW-65
Service lines	PVC	2"	WW-587
Service lines	PVC	4", 6", 8", 12"	WW-308
Fire Hydrant Lead	DI	6"	WW-27
[3]Distribution lines	PVC	8" or 12"	WW-308 or WW-308A
[3]Distribution lines	DI	8" or 12"	WW-27 or WW-27F
Transmission lines	PVC	16" or 24"	WW-308C
Transmission lines	DI	16" or 24"	WW-27 or WW-27F

Note 1
If the required pipe size is not listed; then install the next larger size listed and reduce to the needed size at the meter per the COSM details. See COSM details for more information.
Note 2
The COSM Standard Products List (SPL) can be found on the engineering webpage.
Note 3
The minimum distribution system line size is eight (8) inches, with the exception of short Cul-de-Sacs as indicated in the City's Water Distribution System Design Criteria Technical Manual

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 Utility Notes - *The requirements stated in most current version of the Wastewater Collection System Design Criteria Technical Manual shall supersede these notes if they conflict.*

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 more details.

   - 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.
3. 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.

4. **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.
5. All manholes shall be tested per specification 506.6 prior to lining. All manholes are to be lined per SPL 511.
6. 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.
7. Pipe stub-outs must be provided and located in manholes to facilitate future expansion.
8. 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: Series 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.

1. 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.
3. All services shall have a single disconnecting means in an approved location on the exterior or outside of the building served.
4. All electric disconnecting means and meters shall be assessable.
5. 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 labeling is not present.
6. Panel and socket markings are not allowed to be paint or marker.
7. 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.
8. If electric overhead power lines exist in the project area, Texas Law Article 1435c, 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.
9. 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 authorization 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.

ADDITIONAL NOTES

1. WHEN A DEVELOPMENT IN THE RECHARGE ZONE OR TRANSITION ZONE INCLUDES ANY EXCAVATION, THE PERSON PERFORMING THE DEVELOPMENT MUST EITHER ENGAGE A QUALIFIED GEOLOGIST TO INSPECT THE EXCAVATION, OR NOTIFY THE ENGINEERING DIRECTOR TO ARRANGE FOR INSPECTION OF THE EXCAVATION BY CITY PERSONNEL. THE INSPECTION WILL BE FOR THE PURPOSE OF DETERMINING WHETHER THE EXCAVATION HAS UNCOVERED ANY GEOLOGIC OR MANMADE FEATURE THAT PRESENTS A POSSIBLE AVENUE FOR RECHARGE TO THE AQUIFER. THE INSPECTION WILL BE MADE EITHER UPON COMPLETION OF THE EXCAVATION, IF IT IS IN A SINGLE, DEFINED AREA, OR IN SEGMENTS, IF THE EXCAVATION IS LINEAR, OR IS IN MULTIPLE LOCATIONS, OR IS ACCOMPLISHED OVER AN EXTENDED PERIOD OF TIME. THE EXCAVATION MAY BE TEMPORARILY BACKFILLED BEFORE INSPECTION, BUT INSPECTION MUST OCCUR WITH THE FULL EXCAVATION UNCOVERED BEFORE PERMANENT BACKFILLING IS PERFORMED. IF AN INSPECTION REVEALS THAT ONE OR MORE SUCH FEATURES HAS BEEN UNCOVERED, THE PERSON PERFORMING THE DEVELOPMENT MUST:
   a. IMMEDIATELY NOTIFY THE ENGINEERING DIRECTOR;
   b. UTILIZE TEMPORARY BMPS TO PREVENT POLLUTION FROM ENTERING THE AQUIFER THROUGH THE FEATURES; AND
   c. NOT PERFORM ANY FURTHER WORK IN THE EXCAVATION UNTIL AN APPLICATION FOR AN AMENDMENT TO THE APPROVED WATERSHED PROTECTION PLAN (PHASE 1, PHASE 2, OR QUALIFIED, AS APPLICABLE), FOR A DEVELOPMENT IN THE RECHARGE ZONE, OR AN APPLICATION FOR APPROVAL OF A SITE PREPARATION PERMIT, FOR A DEVELOPMENT IN THE TRANSITION ZONE, IS SUBMITTED TO AND APPROVED BY THE ENGINEERING DIRECTOR.
2. IF A NEW SENSITIVE FEATURE, OR ANY SOLUTION OPENING, CAVE, SINKHOLE, OR SIMILAR FEATURE, IS ENCOUNTERED ON A SITE IN THE RECHARGE ZONE OR TRANSITION ZONE DURING THE CONSTRUCTION PROCESS FOR A DEVELOPMENT, OR IF A PREVIOUSLY KNOWN SENSITIVE FEATURE IS FOUND IN THE COURSE OF CONSTRUCTION TO BE LARGER OR MORE EXTENSIVE THAN PREVIOUSLY NOTED IN THE GEOLOGIC ASSESSMENT OF THE SITE, THE HOLDER OR THE HOLDER'S DESIGNATED REPRESENTATIVE MUST:
   a. IMMEDIATELY SUSPEND ALL EXCAVATION AND CONSTRUCTION ACTIVITIES WITHIN 50 FEET OF THE FEATURE, MEASURED HORIZONTALLY;
   b. IMMEDIATELY NOTIFY THE ENGINEERING DIRECTOR OF THE DISCOVERY; AND
   c. RETAIN A QUALIFIED GEOLOGIST TO INSPECT THE FEATURE AND MAKE A RECOMMENDATION TO THE ENGINEERING DIRECTOR BASED ON THE RELATIVE SENSITIVITY OF THE FEATURE.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST CITY OF SAN MARCOS SPECIFICATIONS.

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED
PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS

GENERAL NOTES 2 OF 3

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 03 OF 76

Date: Aug 21, 2023, 9:23am User ID: jbennett
File: H:\Projects\5084\48\64\301 Construction Documents\Civil\C50848-64.dwg

2023-XXXX

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.
2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.
3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.
4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.
5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.
6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.
8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.
9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet __ of __.

   It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.
10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines parralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).
11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: N/A.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: N/A.

    Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.
12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet XX OF XX. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet XX of XX and marked after backfilling as shown in the detail on plan sheet XX of XX.

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.
14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).
15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
    (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
        (1) *Low Pressure Air Test.*
            (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
            (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
                (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
                (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation;

Equation C.3 $$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter *(inches)*	Minimum Time *(seconds)*	Maximum Length for Minimum Time *(feet)*	Time for Longer Length *(seconds/foot)*
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is proposed flexible pipe, deflection testing is also required. The following procedures must be followed:
(1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
(A) *Mandrel Sizing.*
(i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
(ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
(iii) All dimensions must meet the appropriate standard.
(B) *Mandrel Design.*
(i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
(ii) A mandrel must have nine or more odd number of runners or legs.
(iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
(iv) Each size mandrel must use a separate proving ring.
(C) *Method Options.*
(i) An adjustable or flexible mandrel is prohibited.
(ii) A test may not use television inspection as a substitute for a deflection test.
(iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
(2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
(3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
(4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
(5) Gravity collection system pipe deflection must not exceed five percent (5%).
(6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
    (a) All manholes must pass a leakage test.
    (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
    (1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Texas Commission on Environmental Quality
Contributing Zone Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC, §213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any ground disturbance or construction activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.
2. All contractors conducting regulated activities associated with this project should be provided with complete copies of the approved Contributing Zone Plan (CZP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractor(s) should keep copies of the approved plan and approval letter on-site.
3. No hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
4. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
5. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
6. Sediment must be removed from the sediment traps or sedimentation basins when it occupies 50% of the basin's design capacity.
7. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.
8. All excavated material that will be stored on-site must have proper E&S controls.
9. If portions of the site will have a cease in construction activity lasting longer than 14 days, soil

stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

10. The following records should be maintained and made available to the TCEQ upon request:
    - the dates when major grading activities occur;
    - the dates when construction activities temporarily or permanently cease on a portion of the site; and
    - the dates when stabilization measures are initiated.
11. The holder of any approved CZP must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any best management practices (BMPs) or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;

    B. any change in the nature or character of the regulated activity from that which was originally approved;

    C. any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer; or

    D. any development of land previously identified as undeveloped in the approved contributing zone plan.

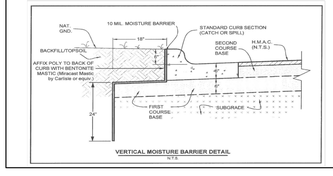
Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

RECOMMENDATIONS - PAVEMENT THICKNESS SECTIONS

Street Classification	Subgrade Material	Hot Mix Asphaltic Concrete, in	Crushed Limestone Base, in	Lime Stabilized Subgrade, in	Moisture Barrier
Residential Streets	More Than 2 Feet High PI Clay (PI > 20)	3.0	12	-	X*
	Less Than 2 Feet High PI Clay (PI > 20)	2.5	8	-	X*
Residential Collectors	More Than 2 Feet High PI Clay (PI > 20)	3.0	15	-	X*
	Less Than 2 Feet High PI Clay (PI > 20)	2.5	10	-	X*
Neighborhood Collectors	More Than 2 Feet of High PI Clay (PI > 20)	3.0	23	-	X*
	Less Than 2 Feet of High PI Clay (PI > 20)	2.5	12	-	X*
Boulevard Low Traffic**	High Swell PI = 36 to 49	6.0	20	12	-
	Moderate Swell PI = 20 to 35	6.0	18	10	-
	Low Swell PI < 20	6.0	16	***	-

Notes:
1. * - It has been our experience that irrigation adjacent to the pavement causes water intrusion beneath the pavement. This water intrusion often causes a soft base course and/or subgrade layer beneath the asphalt. These soft layers typically result in alligator cracking and rutting displacement of the asphalt whenever the pavement surface is repeatedly flexed under traffic loads. To address the issue, it is important to minimize water intrusion beneath the pavement. This is especially important in areas with islands/medians in the street and at model home locations. To minimize water intrusion beneath the pavement, a vertical moisture barrier should be constructed in accordance with the ***Vertical Moisture Barrier Detail*** shown below.



VERTICAL MOISTURE BARRIER DETAIL
N.T.S.

2. ** - These sections were previously used for other portions of Centerpoint Road with similar soil conditions and issued under our revised addendum for Paso Robles Phases 3E, 4, & 5, Job No.: 18101132.003. It is our understanding that a similar section is desired for this portion of Centerpoint Road.
3. *** - Where the subgrade is comprised of limestone or low PI (PI<20) material, the lime stabilized subgrade may be omitted. It is our understanding that this has been discussed with the City of San Marcos and they are in agreement.
4. The surface clay must first be tested for sulfate reaction and a mix design should be completed to determine the proper lime content, lime type, mixing procedure and curing conditions required.
5. The subgrade improvement should be extended 3 feet beyond the back of the curb line.
6. These pavement thickness designs are intended to transfer the load from the anticipated traffic conditions.
7. The responsibility of assigning street classification to the streets in this project is left to the civil engineer.
8. If pavement designs other than those listed above are desired, please contact MLA Geotechnical.
9. **Delineation between these different pavement thickness sections should be completed in the field by observation of open utilities trenches and the pavement subgrade by the Geotechnical Engineer of his designate.** Given the known variability of surface soils and the presence of faults at this site, the geotechnical engineer must verify the subgrade before installation of the pavement system can proceed. Multiple site visits may be required depending upon the construction schedule. Finalized distinction between pavement thickness section options shall be provided as addendums to this report as these observations are completed. Please contact the geotechnical engineer when the utility trenches are open.
10. The concern has arisen that ground water may enter the utility trenches at this site causing detrimental settlement of the utility trench backfill, especially at geological transition zones. To address this concern, the wastewater utility trenches could be turned in to French drains. To achieve this, additional poorly-graded gravel, such as the gravel already being used for pipe bedding at this site, should be placed above the pipe bedding material to the elevation where ground water is encountered. This extra layer of gravel should be covered with a geotextile fabric to prevent material above the gravel from infiltrating the gravel layer. Then, the utility trench should be filled in compacted layers in accordance with the construction plans. The wastewater utility trench must then be allowed to daylight from its lowest point such that water does not accumulate in the utility trench. Additional gravel may be required in the utility trench depending upon the depth that ground water is entering the utility trench during construction. A line item for French drains should be included in construction bid documents.

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS

GENERAL NOTES 3 OF 3

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 04 OF 76

Date: Aug 21, 2023, 9:23am User ID: jbennett
File: I:\Projects\5084\48\64.301 Construction Documents\Civil\D\50848-64.dwg

2023-XXXX

SEQUENCE OF CONSTRUCTION:

1. OBTAIN CITY APPROVED SITE PLAN PERMIT AND APPLICABLE TPDES SWPPP PERMIT TXR150000 COVERAGE; HAVE A TX PE, CPESC, OR QDSWPPP PREPARE/AMEND PROJECT-SPECIFIC SWPPP.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND UPLOAD TO MYGOVERNMENTONLINE.ORG OR OTHERWISE PROVIDE TO THE PERMIT CENTER THE LARGE CONSTRUCTION SITE NOTICE (CSN) WITH A PROJECT SPECIFIC TPDES AUTHORIZATION NUMBER FROM TCEQ. POST THE CSN ONSITE IN PUBLIC VIEW.
3. SCHEDULE PRE-CON MEETING WITH CITY OF SAN MARCOS. 512 805-2630.
4. BEGIN SITE CLEARING AND GRADING.
5. HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT. MAINTAIN ALL EROSION CONTROL MEASURES AND ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS.
6. INSTALL TEMPORARY SED POND AS APPROPRIATE.
7. INSTALL UTILITIES AND PAVEMENT.
8. RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
9. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
10. SCHEDULE SITE FINAL INSPECTION WITH THE PERMIT CENTER: SITEFINAL@SANMARCOSTX.GOV OR 12-805-2630.
11. WITH CITY APPROVAL, CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED.
12. THE DESIGN ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DETENTION AND PERMANENT WATER QUALITY BMPs WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.
13. CITY ISSUES CERTIFICATE OF ACCEPTANCE OR OCCUPANCY.

CITY OF SAN MARCOS 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) IR 86.529(c)(3)], AVAILABLE (HARD COPY, INCLUDING A FULL-SIZE SITE MAP) AT THE PRE-CON MEETING, KEPT ONSITE, AND UPDATED TO MATCH SITE CONDITIONS DURING THE PROJECT. THE ASSOCIATED TCEQ CONSTRUCTION SITE NOTICE MUST BE SUBMITTED TO THE PERMIT CENTER TO SCHEDULE THE PRE-CON MEETING AND POSTED IN PUBLIC VIEW (TXR150000 PART III.D.2.) PRIOR TO/AT THE PRE-CON MEETING.
2. IF THERE IS A BREAK OF MORE THAN 14 DAYS DURING THE PROJECT WHERE NO 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)(q). 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 HARDWOOD MULCH, DEGRADABLE SOIL RETENTION BLANKETS, OR SIMILAR. NOTE THAT MATTING, MULCH, OR BLANKETS REQUIRE ONGOING MAINTENANCE.
3. 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-APPROVED PLAN AND THEIR INSTALLATION APPROVED BY A CITY ENVIRONMENTAL INSPECTOR AT AN ONSITE PRE-CON MEETING. CALL PERMIT CENTER AT 512-805-2630 TO SCHEDULE. [TXR150000 PART III.G.1. AND CITY CODE SECTION 86.529.(a)(1)]
4. SAN MARCOS CITY CODE SUBPART A, CHAP. 14, ART. 2, SEC. 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
5. SAN MARCOS CITY CODE SUBPART A, CHAP. 14, ART. 2, SEC. 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
6. SAN MARCOS CITY CODE SUBPART A, CHAP. 14, ART. 2, SEC. 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 TPDES CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN REQULATIONS, REGARDLESS OF THE SIZE OF THE SITE AND/OR PILE. IN NO CASE SHALL SITE AND/OR BUILDING FINAL INSPECTIONS BE APPROVED UNTIL ALL SPOILS PILES HAVE BEEN REMOVED FROM CONSTRUCTION SITES
7. PER TXR150000 PART III.(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, SPOILS STORAGE, CONCRETE WASHOUT, DUMPSTERS, PORTABLE TOLIET(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 AN DINK CHANGES.
8. THE LIMITS OF CONSTRUCTION SHALL BE ADJUSTED AS NEEDED DURING THE PROJECT TO COVER ALL AREAS DISTURBED DURING DEMOLITION, GRADING, CONSTRUCTION, STORAGE, STOCKPILING, PARKING, ETC., PER TXR150000 PARTS I AND III.G.4.(c) AND (d) ADDITIONAL ESCs MAY BE REQUIRED
9. POND OR OTHER DISTURBED SLOPES 3:1 OR FLATTER MUST BE PERMANENTLY STABILIZED WITH SEED AND BIODEGRADABLE SOIL RETENTION BLANKETS WITH NO PLASTIC NETTING. DISTURBED SLOPES EXCEEDING 3:1 REQUIRE SEED AND BLANKETS OR EQUIVALENT UNTIL REVEGETATION IS ESTABLISHED. OR SOD. [CoSM 2/15/2019 MODIFICATIONS TO THE CoA AND TXDOT STANDARD SPECIFICATIONS.]
10. PER LDC SECTION 6.4.2.4.A., ALL PRESERVED TREES ON A DEMOLITION OR CONSTRUCTION SITE SHALL BE PROVIDED PROTECTION FOR A MINIMUM OF 75% OF THEIR ROOT PROTECTION ZONE IN ACCORDANCE WITH CITY OF SAN MARCOS STANDARD DETAILS AND TECHNICAL SPECIFICATIONS. TREE PROTECTION IS REQUIRED TO KEEP ALL FORMS OF ACTIVITY OUTSIDE OF ROOT PROTECTION ZONES INCLUDING VEHICLE PARKING, GRADING OPERATIONS, CONSTRUCTION, NEEDED WORKSPACE ALONG THE EDGE(S) OF CONSTRUCTION, STORAGE OF MATERIALS, EQUIPMENT, OR SPOILS, ETC. TREE PROTECTION SHOULD NOT BE MOVED DURING DEMOLITION, GRADING OR CONSTRUCTION.
11. INSTALL TREE PROTECTION AS SHOWN AT EDGES OF ROOT PROTECTION ZONES, TO THE EXTENT FEASIBLE NEAR GRADING, CONSTRUCTION, ETC., FOR ALL TREES TO BE PRESERVED, PER LDC SECTION 6.4.2.4.A. AND STANDARD DETAILS 610S-1-SM, 610S-2-SM, 610S-4-SM. USE MODIFIED MEASURES IN NOTES 1 AND 10 OF STANDARD DETAIL 610S-4-SM SINCE TREE PROTECTION LOCATION HAD TO BE ADJUSTED FOR GRADING AND CONSTRUCTION IN THIS PROJECT.
12. IF 'PRESERVED' TREES DO NOT SURVIVE DEMOLITION, GRADING, AND/OR CONSTRUCTION, MITIGATION, WILL BE REQUIRED.
13. CONTRACTOR MUST HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT PER TXR150000 PART III.F.7 AND CITY CODE 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 PART III.F.6-7 AND CITY CODE SECTION 86.529(c)(11).
14. CONCRETE WASTE, CONCRETE WASH WATER, AND MASONRY/STUCCO/PAINT MIXING AND WASH WATER, AS APPLICABLE, MUST BE CONTAINED IN A PRE-MADE STRUCTURE(S), LINED STRUCTURE(S), OR LINED PIT(S) PER TXR150000 PART V.D.
15. ANY EXISTING STORMWATER INLETS WITHIN 200' OF THE LOC MUST HAVE INLET PROTECTION. STORMWATER INLET PROTECTION IS ALSO REQUIRED AS NEW STORMWATER INLETS ARE ADDED TO THE SITE, IF APPLICABLE.
16. ALL UNCOVERED AREAS DISTURBED DURING THE PROJECT, INCLUDING ANY OFFSITE DISTURBED AREAS, MUST BE PERMANENTLY STABILIZED WITH SOD INSTALLATION, HYDROMULCH SEEDING, PLANTING, AND/OR INSTALLATION OF OTHER APPROVED LANDSCAPE MATERIALS. PROVIDED THAT LDC MINIMUM LANDSCAPING REQUIREMENTS ARE MET. REMOVE ALL DEBRIS, FIX ALL RUTS, AND FINAL GRADES ALL DISTURBED AREAS; DO NOT BURY OR SOD/SEED OVER DEBRIS OR SILT FENCE, ETC. TILL SUBGRADE TO 6" DEPTH OR INSTALL AT LEAST 6" OF SCREENED TOP SOIL (NOT GRADED CLAY, BASE MATERIAL, OR SAND) PRIOR TO VEGETATING. PROVIDE TEMPORARY (OR PERMANENT IF INCLUDED IN PLANS) WATERING SUFFICIENT TO ACHIEVE PERENNIAL VEGETATIVE COVER OF AT LEAST 70% DENSITY EVENLY DISTRIBUTED WITH NO LARGE BARE AREAS PER TXR150000 PARTS 1.B, III.G.1.(g) AND (h), AND III.G.2. WINTER RYE OR ANNUAL RYEGRASS ALONE ARE NOT ACCEPTED AS PERMANENT STABILIZATION.

MATCHLINE - SEE SHEET 08 OF 77

NOTE:
PER THE PASO ROBLES PDD, APPENDIX VII "CODE MODIFICATION COMPARISON TABLE", PAGE 4 OF 7; SECTION 5.1.1.5(q) OF THE CITY OF SAN MARCOS LAND DEVELOPMENT CODE HAS BEEN STRICKEN FROM APPLICATION ON THIS PROJECT. THIS PROJECT IS NOT SUBJECT TO IMPERVIOUS COVER LIMITATIONS ON HILLSIDES.

SCALE: 1"= 60'

0' 60' 120' 180'

LEGEND

- SD — PROPOSED STORM DRAIN
- SD — EXISTING STORM DRAIN
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- 725 — PROPOSED MAJOR CONTOUR
- 724 — PROPOSED MINOR CONTOUR
- 725 — EXISTING MAJOR CONTOUR
- 724 — EXISTING MINOR CONTOUR
- TREE PROTECTION FENCING
- PROTECTED TREES (SEE COSM DETAIL 610S-2-SM, SHEET 58)
- REMOVED TREES
- IP — CURB INLET PROTECTION
- IP — EXISTING CURB INLET PROTECTION
- IP — AREA INLET PROTECTION
- ROCK BERM
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- DD — DIVERSION DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- STAGING AND STORAGE AREA/ CONCRETE WASHOUT AREA
- AREA TO REMAIN NATURAL (NO GRADING)
- COSM WATER QUALITY ZONE
- COSM WATER QUALITY BUFFER ZONE
- SF — POST CONSTRUCTION EROSION CONTROLS SILT FENCE PLACED AT EASEMENT LINE OR VEGETATION ESTABLISHMENT BEHIND CURB TO EASEMENT LINE.

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

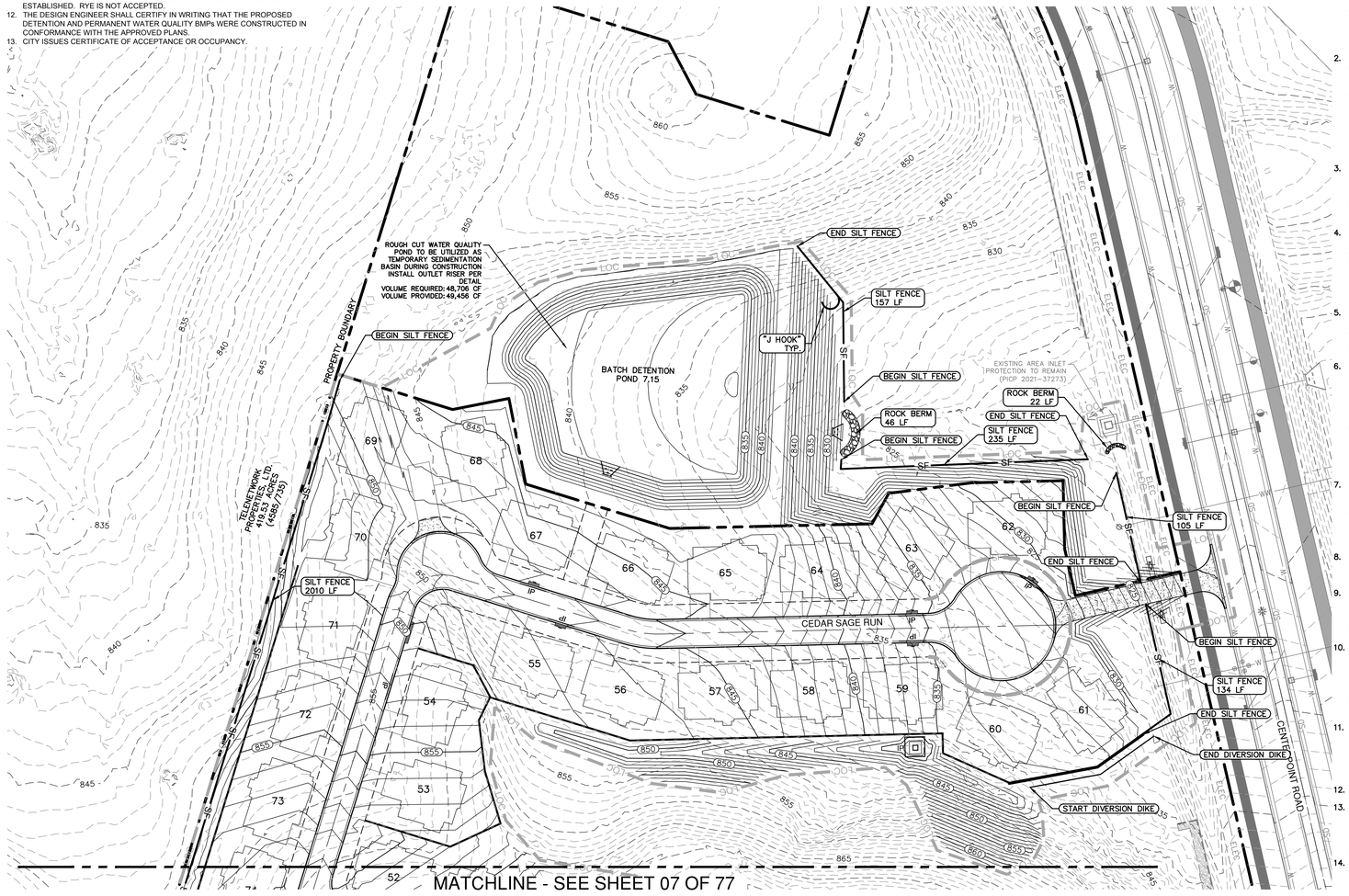
KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
EROSION & SEDIMENTATION CONTROL PLAN 1 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 07 OF 76

2023-XXXX

SEQUENCE OF CONSTRUCTION:

1. OBTAIN CITY APPROVED SITE PLAN PERMIT AND APPLICABLE TPDES SWPPP PERMIT TXR150000 COVERAGE; HAVE A TX PE, CPESC, OR QDSWPPP PREPARE/AMEND PROJECT-SPECIFIC SWPPP.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND UPLOAD TO MYGOVERNMENTONLINE.ORG OR OTHERWISE PROVIDE TO THE PERMIT CENTER THE LARGE CONSTRUCTION SITE NOTICE (CSN) WITH A PROJECT SPECIFIC TPDES AUTHORIZATION NUMBER FROM TCEQ. POST THE CSN ONSITE IN PUBLIC VIEW.
3. SCHEDULE PRE-CON MEETING WITH CITY OF SAN MARCOS. 512 805-2630.
4. BEGIN SITE CLEARING AND GRADING.
5. HAVE A CISEC, CESSWI, OR QCIS CONDUCT WEEKLY SWPPP INSPECTIONS AND DOCUMENT. MAINTAIN ALL EROSION CONTROL MEASURES AND ADDRESS ALL IDENTIFIED CORRECTIVE ACTIONS.
6. INSTALL TEMPORARY SED POND AS APPROPRIATE.
7. INSTALL UTILITIES AND PAVEMENT.
8. RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
9. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
10. SCHEDULE SITE FINAL INSPECTION WITH THE PERMIT CENTER: SITEFINAL@SANMARCOSTX.GOV OR 12-805-2630.
11. WITH CITY APPROVAL, CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED.
12. THE DESIGN ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DETENTION AND PERMANENT WATER QUALITY BMPs WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.
13. CITY ISSUES CERTIFICATE OF ACCEPTANCE OR OCCUPANCY.



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0' 60' 120' 180'

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LEGEND

- SD — PROPOSED STORM DRAIN
- SD — EXISTING STORM DRAIN
- W — PROPOSED WATER LINE
- W — EXISTING WATER LINE
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENT
- (725) PROPOSED MAJOR CONTOUR
- (724) PROPOSED MINOR CONTOUR
- 725 EXISTING MAJOR CONTOUR
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- TREE PROTECTION FENCING
- PROTECTED TREES (SEE COSM DETAIL 610S-2-SM, SHEET 58)
- REMOVED TREES
- IP CURB INLET PROTECTION
- IP EXISTING CURB INLET PROTECTION
- IP AREA INLET PROTECTION
- ROCK BERM
- LOC LIMITS OF CONSTRUCTION
- SF SILT FENCE
- DD DIVERSION DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- STAGING AND STORAGE AREA/ CONCRETE WASHOUT AREA
- AREA TO REMAIN NATURAL (NO GRADING)
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- COSM WATER QUALITY BUFFER ZONE
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NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

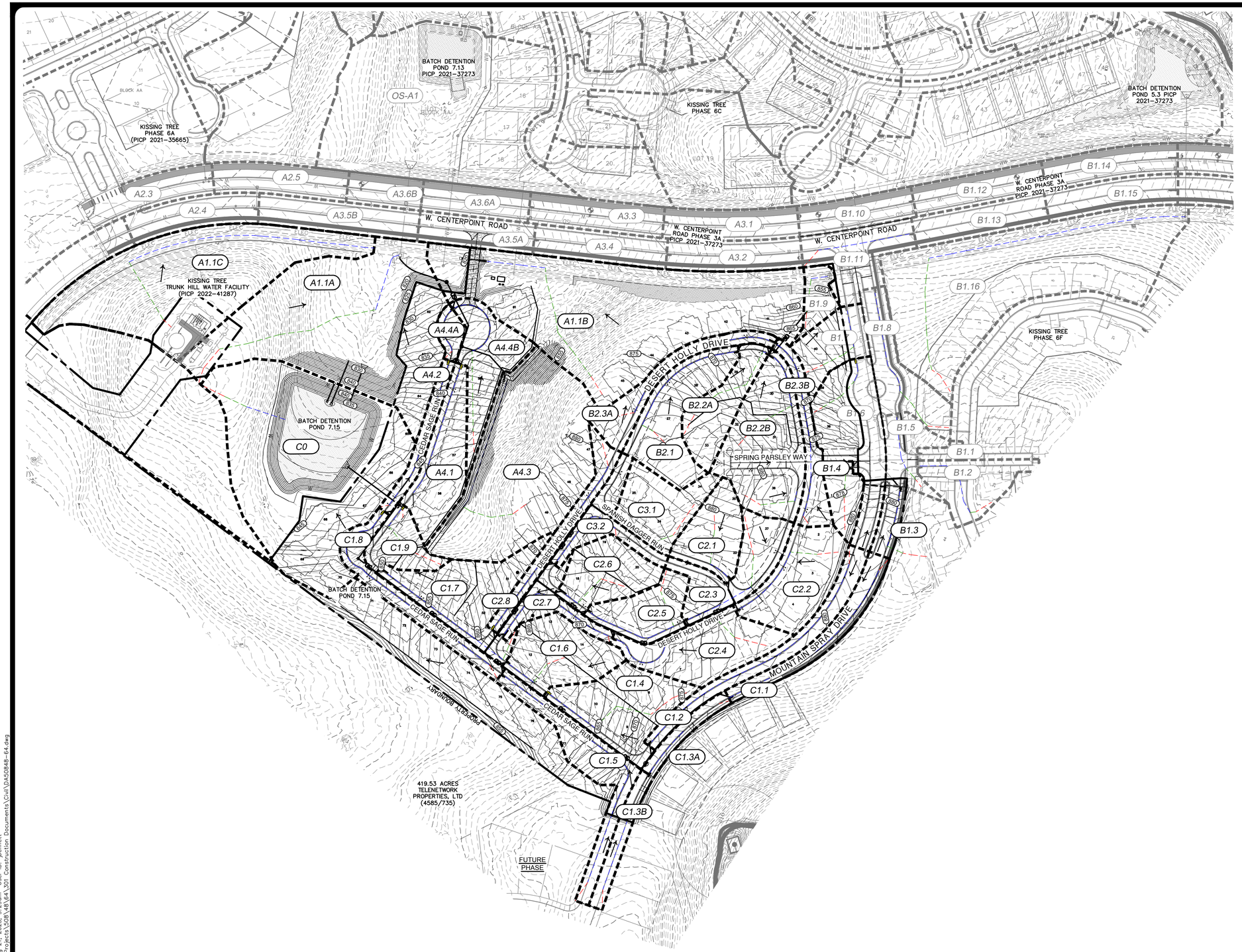
KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS

EROSION & SEDIMENTATION CONTROL PLAN 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 08 OF 76

2023-XXXX

Date: Aug 21, 2023, 9:27am User ID: jbennett
File: H:\Projects\5084\Y81\64\301 Construction Documents\Civil\EC50848-64.dwg



SCALE: 1"= 100'

0' 100' 200' 300'

LEGEND

- PROPOSED DRAINAGE AREA BOUNDARY
- STORM DRAIN LINE
- STORM DRAIN INLET
- FLOW DIRECTION
- A1.1 — DRAINAGE AREA DESIGNATION
- SHEET FLOW
- SHALLOW CONCENTRATED FLOW
- CHANNELIZED FLOW
- DD — DIVERSION DIKE

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
DRAINAGE AREA MAP

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 26 OF 76

Date: Aug 21, 2023, 9:29am User ID: jbennett
File: H:\Projects\5084\64\64_301 Construction Documents\Civil\DA50848-64.dwg

KISSING TREE PHASE 6C								25 year					100 year				
D.A.	AREA (SF)	AREA (AC)	# homes	L. Street	IC	PC	%IC	Pervious C	Pervious PC * C	Impervious C	Impervious IC * C	Weighted C	Pervious C	Pervious PC * C	Impervious C	Impervious IC * C	Weighted C
A1.1A	121,097	2.78	3.5	0	0.39	2.39	13.87%	0.39	0.93	0.87	0.34	0.46	0.46	1.10	0.96	0.37	0.53
A1.1B	139,392	3.20	6.25	107	0.59	2.61	18.31%	0.39	1.02	0.87	0.51	0.48	0.46	1.20	0.96	0.56	0.55
A1.1C	98,010	2.25	0	0	0.18	2.07	8.05%	0.39	0.81	0.87	0.16	0.43	0.46	0.95	0.96	0.17	0.50
A1.1	358,499	8.23	9.75	107	0.89	7.34	10.77%	0.39	2.86	0.87	0.77	0.44	0.46	3.38	0.96	0.85	0.51
Culvert B	128,502	2.95	5.25	0	0.45	2.50	15.28%	0.39	0.97	0.87	0.39	0.46	0.46	1.15	0.96	0.43	0.54
A4.1	27,007	0.62	3	320	0.36	0.26	57.53%	0.39	0.10	0.87	0.31	0.67	0.46	0.12	0.96	0.34	0.75
A4.2	9,148	0.21	0	355	0.13	0.08	60.26%	0.39	0.03	0.87	0.11	0.68	0.46	0.04	0.96	0.12	0.76
A4.3	93,654	2.15	3.25	0	0.28	1.87	12.98%	0.39	0.73	0.87	0.24	0.45	0.46	0.86	0.96	0.27	0.52
A4.4A	4,792	0.11	0	120	0.07	0.04	65.71%	0.39	0.01	0.87	0.06	0.71	0.46	0.02	0.96	0.07	0.79
A4.4B	25,700	0.59	2.50	150	0.34	0.25	57.86%	0.39	0.10	0.87	0.30	0.67	0.46	0.11	0.96	0.33	0.75
A4.4	30,492	0.70	3	270	0.41	0.29	59.09%	0.39	0.11	0.87	0.36	0.67	0.46	0.13	0.96	0.40	0.76
B1.1	3,049	0.07	0	116	0.04	0.03	51.36%	0.39	0.01	0.87	0.03	0.64	0.46	0.02	0.96	0.03	0.72
B1.2	18,295	0.42	1.25	365	0.42	0.00	100.50%	0.39	0.00	0.87	0.37	0.87	0.46	0.00	0.96	0.41	0.96
B1.3	23,522	0.54	1.5	144	0.24	0.30	44.24%	0.39	0.12	0.87	0.21	0.60	0.46	0.14	0.96	0.23	0.68
B1.4	10,019	0.23	0.5	64	0.06	0.17	27.28%	0.39	0.07	0.87	0.05	0.52	0.46	0.08	0.96	0.06	0.60
B1.5	13,939	0.32	0.25	167	0.16	0.16	51.31%	0.39	0.06	0.87	0.14	0.64	0.46	0.07	0.96	0.16	0.72
B1.6	36,590	0.84	1.5	520	0.46	0.38	55.24%	0.39	0.15	0.87	0.40	0.66	0.46	0.17	0.96	0.45	0.74
B1.7	16,988	0.39	1.5	113	0.19	0.20	48.97%	0.39	0.08	0.87	0.17	0.63	0.46	0.09	0.96	0.18	0.70
B1.8	23,958	0.55	1	269	0.26	0.29	47.04%	0.39	0.11	0.87	0.23	0.62	0.46	0.13	0.96	0.25	0.70
B1.9	7,841	0.18	0	0	0.00	0.18	0.00%	0.39	0.07	0.87	0.00	0.39	0.46	0.08	0.96	0.00	0.46
B1.10	16,074	0.37	0	250	0.22	0.15	59.10%	0.39	0.06	0.87	0.19	0.67	0.46	0.07	0.96	0.21	0.76
B1.11	23,958	0.55	0	331	0.29	0.26	53.04%	0.39	0.10	0.87	0.25	0.64	0.46	0.12	0.96	0.28	0.73
B1.12	18,208	0.42	0	280	0.24	0.17	58.44%	0.39	0.07	0.87	0.21	0.67	0.46	0.08	0.96	0.23	0.75
B1.13	18,513	0.43	0	285	0.22	0.20	52.34%	0.39	0.08	0.87	0.19	0.64	0.46	0.09	0.96	0.21	0.72
B1.14	18,513	0.43	0	279	0.24	0.18	57.27%	0.39	0.07	0.87	0.21	0.66	0.46	0.08	0.96	0.23	0.75
B1.15	18,208	0.42	0	286	0.22	0.19	53.40%	0.39	0.08	0.87	0.19	0.65	0.46	0.09	0.96	0.21	0.73
B1.16	122,839	2.82	6	0	0.52	2.30	18.26%	0.39	0.90	0.87	0.45	0.48	0.46	1.06	0.96	0.49	0.55
B2.1	32,234	0.74	3.5	357	0.41	0.33	55.55%	0.39	0.13	0.87	0.36	0.66	0.46	0.15	0.96	0.39	0.74
B2.2A	20,038	0.46	2	74	0.19	0.27	42.31%	0.39	0.10	0.87	0.17	0.59	0.46	0.12	0.96	0.19	0.67
B2.2B	45,302	1.04	3.5	529	0.46	0.58	44.65%	0.39	0.22	0.87	0.40	0.60	0.46	0.26	0.96	0.45	0.68
B2.2	65,340	1.50	6	603	0.66	0.84	43.93%	0.39	0.33	0.87	0.57	0.60	0.46	0.39	0.96	0.63	0.68
B2.3A	16,988	0.39	0.5	432	0.18	0.21	45.33%	0.39	0.08	0.87	0.15	0.61	0.46	0.10	0.96	0.17	0.69
B2.3B	14,810	0.34	1	410	0.21	0.13	62.62%	0.39	0.05	0.87	0.19	0.69	0.46	0.06	0.96	0.20	0.77
B2.3	31,799	0.73	1.5	842	0.39	0.34	53.38%	0.39	0.13	0.87	0.34	0.65	0.46	0.16	0.96	0.37	0.73
C0	135,036	3.10	5.5	0	0.47	2.63	15.23%	0.39	1.02	0.87	0.41	0.46	0.46	1.21	0.96	0.45	0.54
C1.1	16,553	0.38	0	441	0.24	0.14	64.29%	0.39	0.05	0.87	0.21	0.70	0.46	0.06	0.96	0.23	0.78
C1.2	21,780	0.50	0	635	0.26	0.24	51.02%	0.39	0.10	0.87	0.22	0.63	0.46	0.11	0.96	0.24	0.72
C1.3A	7,144	0.16	0	245	0.15	0.01	92.28%	0.39	0.00	0.87	0.13	0.83	0.46	0.01	0.96	0.15	0.92
C1.3B	9,148	0.21	0	307	0.17	0.04	79.45%	0.39	0.02	0.87	0.15	0.77	0.46	0.02	0.96	0.16	0.86
C1.3	16,291	0.37	0	552	0.32	0.06	85.08%	0.39	0.02	0.87	0.28	0.80	0.46	0.03	0.96	0.31	0.89
C1.4	34,848	0.80	4	311	0.44	0.36	55.53%	0.39	0.14	0.87	0.39	0.66	0.46	0.16	0.96	0.43	0.74
C1.5	26,572	0.61	1.5	387	0.27	0.34	44.16%	0.39	0.13	0.87	0.23	0.60	0.46	0.16	0.96	0.26	0.68
C1.6	27,443	0.63	3.5	108	0.33	0.30	53.00%	0.39	0.12	0.87	0.29	0.64	0.46	0.14	0.96	0.32	0.72
C1.7	36,155	0.83	4	365	0.46	0.37	55.00%	0.39	0.15	0.87	0.40	0.65	0.46	0.17	0.96	0.44	0.73
C1.8	18,731	0.43	0	544	0.20	0.23	46.90%	0.39	0.09	0.87	0.18	0.62	0.46	0.11	0.96	0.19	0.69
C1.9	13,939	0.32	1	183	0.14	0.18	44.55%	0.39	0.07	0.87	0.12	0.60	0.46	0.08	0.96	0.14	0.68
C2.1	20,038	0.46	3	136	0.30	0.16	65.14%	0.39	0.06	0.87	0.26	0.70	0.46	0.07	0.96	0.29	0.79
C2.2	30,492	0.70	3	224	0.33	0.37	46.70%	0.39	0.15	0.87	0.28	0.61	0.46	0.17	0.96	0.31	0.69
C2.3	25,265	0.58	1.5	713	0.35	0.23	60.30%	0.39	0.09	0.87	0.30	0.68	0.46	0.11	0.96	0.34	0.76
C2.4	32,234	0.74	2.5	319	0.31	0.43	42.36%	0.39	0.17	0.87	0.27	0.59	0.46	0.20	0.96	0.30	0.67
C2.5	19,166	0.44	2	241	0.25	0.19	55.99%	0.39	0.08	0.87	0.21	0.66	0.46	0.09	0.96	0.24	0.74
C2.6	22,651	0.52	3	75	0.28	0.24	53.99%	0.39	0.09	0.87	0.24	0.65	0.46	0.11	0.96	0.27	0.73
C2.7	13,068	0.30	0.5	390	0.16	0.14	54.60%	0.39	0.05	0.87	0.14	0.65	0.46	0.06	0.96	0.16	0.73
C2.8	14,375	0.33	0	465	0.14	0.19	43.67%	0.39	0.07	0.87	0.13	0.60	0.46	0.09	0.96	0.14	0.68
C3.1	23,087	0.53	3	149	0.30	0.23	57.30%	0.39	0.09	0.87	0.26	0.67	0.46	0.10	0.96	0.29	0.75
C3.2	15,246	0.35	0.5	475	0.19	0.16	54.32%	0.39	0.06	0.87	0.17	0.65	0.46	0.07	0.96	0.18	0.73

DRAINAGE AREA	INLET NUMBER	AREA (acres)	COMPOSITE C		A·C25	A·C100	SHEET FLOW				SHALLOW CONCENTRATED FLOW				CHANNELIZED FLOW					Cumulative	INTENSITY		DISCHARGE	
			C25	C100			Length (ft)	Manning's (n)	Slope ft/ft	Tc (min)	Length (ft)	Paved/ Unpaved	Slope ft/ft	Tc (min)	Length (ft)	Manning's (n)	Slope ft/ft	Velocity ft/s	Tc (min)	Tc (min)	I 25yr (in/hr)	I 100yr (in/hr)	Q 25 (cfs)	Q 100 (cfs)
A1.1A	A1.1A	2.78	0.46	0.53	1.27	1.47	84	0.24	0.026	9.8	342	U	0.117	1.0	131	0.02	0.034	5.3	0.4	11.26	8.6	10.9	10.9	16.1
A1.1B	A1.1B	3.20	0.48	0.55	1.53	1.76	45	0.24	0.103	3.4	256	U	0.208	0.6	124	0.02	0.043	6.0	0.3	5.00	11.4	14.7	17.4	25.9
A1.1C	A1.1C	2.25	0.43	0.50	0.96	1.13	24	0.24	0.025	3.7	141	U	0.220	0.3	528	0.02	0.021	4.2	2.1	6.07	10.8	13.8	10.4	15.6
A1.1	A1.1	8.23	0.44	0.51	3.64	4.23	-	-	-	-	-	-	-	-	-	-	-	-	-	11.26	8.6	10.9	31.2	46.3
Culvert B	Culvert B	2.95	0.46	0.54	1.37	1.58	45	0.24	0.103	3.4	256	U	0.208	0.6	124	0.24	0.043	0.5	4.1	8.16	9.7	12.4	13.3	19.7
A4.1	A4.1	0.62	0.67	0.75	0.41	0.46	28	0.24	0.029	3.9	0	U	0.020	0.0	282	0.02	0.032	5.2	0.9	5.00	11.4	14.7	4.7	6.8
A4.2	A4.2	0.21	0.68	0.76	0.14	0.16	21	0.24	0.032	3.0	0	U	0.020	0.0	324	0.02	0.032	5.2	1.0	5.00	11.4	14.7	1.6	2.4
A4.3	A4.3	2.15	0.45	0.52	0.97	1.13	36	0.24	0.028	4.8	109	U	0.017	0.9	278	0.02	0.037	5.5	0.8	6.54	10.5	13.5	10.2	15.2
A4.4A	A4.4A	0.11	0.71	0.79	0.08	0.09	19	0.24	0.074	2.0	0	U	0.059	0.0	94	0.02	0.049	6.4	0.2	5.00	11.4	14.7	0.9	1.3
A4.4B	A4.4B	0.59	0.67	0.75	0.39	0.44	43	0.24	0.070	3.9	170	U	0.059	0.7	170	0.02	0.041	5.8	0.5	5.07	11.3	14.6	4.5	6.5
A4.4	A4.4	0.70	0.67	0.76	0.47	0.53	-	-	-	-	-	-	-	-	-	-	-	-	-	5.07	11.3	14.6	5.3	7.7
B1.1	B1.1	0.07	0.64	0.72	0.04	0.05	15	0.24	0.020	2.7	0	U	0.010	0.0	50	0.02	0.085	8.4	0.1	5.00	11.4	14.7	0.5	0.7
B1.2	B1.2	0.42	0.87	0.96	0.37	0.40	40	0.24	0.028	5.3	12	U	0.020	0.1	171	0.02	0.043	5.9	0.5	5.83	10.9	14.0	4.0	5.7
B1.3	B1.3	0.54	0.60	0.68	0.33	0.37	50	0.24	0.049	5.0	36	U	0.049	0.2	119	0.02	0.033	5.2	0.4	5.58	11.0	14.2	3.6	5.2
B1.4	B1.4	0.23	0.52	0.60	0.12	0.14	70	0.24	0.016	10.3	63	U	0.033	0.4	4	0.02	0.008	2.6	0.0	10.68	8.8	11.2	1.1	1.5
B1.5	B1.5	0.32	0.64	0.72	0.20	0.23	20	0.24	0.053	2.3	31	U	0.010	0.3	110	0.02	0.060	7.1	0.3	10.68	8.8	11.2	1.8	2.6
B1.6	B1.6	0.84	0.66	0.74	0.55	0.62	20	0.24	0.057	2.3	89	U	0.055	0.4	39	0.02	0.046	6.2	0.1	10.68	8.8	11.2	4.8	6.9
B1.7	B1.7	0.39	0.63	0.70	0.24	0.27	39	0.24	0.043	4.3	76	U	0.042	0.4	77	0.02	0.052	6.6	0.2	10.68	8.8	11.2	2.1	3.1
B1.8	B1.8	0.55	0.62	0.70	0.34	0.38	45	0.24	0.041	5.0	92	U	0.071	0.4	208	0.02	0.057	6.9	0.5	5.82	10.9	14.0	3.7	5.4
B1.9	B1.9	0.18	0.39	0.46	0.07	0.08	33	0.24	0.065	3.2	72	U	0.110	0.2	35	0.02	0.022	4.3	0.1	5.00	11.4	14.7	0.8	1.2
B1.10	B1.10	0.37	0.67	0.76	0.25	0.28	42	0.24	0.018	6.5	0	U	0.020	0.0	210	0.02	0.028	4.8	0.7	7.25	10.1	13.0	2.5	3.6
B1.11	B1.11	0.55	0.64	0.73	0.35	0.40	49	0.24	0.017	7.6	0	U	0.020	0.0	195	0.02	0.028	4.8	0.7	8.23	9.7	12.4	3.4	4.9
B1.12	B1.12	0.42	0.67	0.75	0.28	0.31	45	0.24	0.036	5.2	0	U	0.020	0.0	239	0.02	0.031	5.1	0.8	6.01	10.8	13.9	3.0	4.4
B1.13	B1.13	0.43	0.64	0.72	0.27	0.31	43	0.24	0.035	5.1	0	U	0.020	0.0	247	0.02	0.031	5.1	0.8	5.91	10.8	13.9	3.0	4.3
B1.14	B1.14	0.43	0.66	0.75	0.28	0.32	55	0.24	0.030	6.6	0	U	0.020	0.0	241	0.02	0.034	5.3	0.8	7.36	10.1	12.9	2.9	4.1
B1.15	B1.15	0.42	0.65	0.73	0.27	0.30	51	0.24	0.034	5.9	0	U	0.020	0.0	243	0.02	0.035	5.4	0.8	6.66	10.4	13.4	2.8	4.1
B1.16	B1.16	2.82	0.48	0.55	1.35	1.55	61	0.24	0.050	5.8	237	U	0.070	0.9	549	0.02	0.034	5.3	1.7	8.49	9.6	12.3	12.9	19.1
B2.1	B2.1	0.74	0.66	0.74	0.49	0.55	35	0.24	0.014	6.2	27	U	0.019	0.2	264	0.02	0.045	6.1	0.7	7.16	10.2	13.1	5.0	7.1
B2.2A	B2.2A	0.46	0.59	0.67	0.27	0.31	60	0.24	0.047	5.9	195	U	0.057	0.8	6	0.02	0.045	6.1	0.0	6.78	10.4	13.3	2.8	4.1
B2.2B	B2.2B	1.04	0.60	0.68	0.63	0.71	55	0.24	0.059	5.0	87	U	0.103	0.3	111	0.02	0.032	5.2	0.4	5.68	11.0	14.1	6.9	10.0
B2.2	B2.2	1.50	0.60	0.68	0.90	1.02	-	-	-	-	-	-	-	-	-	-	-	-	-	6.78	10.4	13.3	9.4	13.6
B2.3A	B2.3A	0.39	0.61	0.69	0.24	0.27	44	0.24	0.025	5.9	0	U	0.022	0.0	351	0.02	0.037	5.5	1.1	7.00	10.3	13.2	2.4	3.5
B2.3B	B2.3B	0.34	0.69	0.77	0.23	0.26	18	0.24	0.030	2.7	0	U	0.020	0.0	382	0.02	0.031	5.1	1.3	5.00	11.4	14.7	2.7	3.9
B2.3	B2.3	0.73	0.65	0.73	0.47	0.53	-	-	-	-	-	-	-	-	-	-	-	-	-	7.00	10.3	13.2	4.8	7.0
C0	C0	3.10	0.46	0.54	1.44	1.66	56	0.24	0.046	5.6	52	U	0.068	0.2	86	0.02	0.193	12.7	0.1	5.97	10.8	13.9	15.5	23.1
C1.1	C1.1	0.38	0.70	0.78	0.27	0.30	33	0.24	0.024	4.8	0	U	0.020	0.0	428	0.02	0.017	3.8	1.9	6.69	10.4	13.4	2.8	4.0
C1.2	C1.2	0.50	0.63	0.72	0.32	0.36	42	0.24	0.021	6.1	0	U	0.020	0.0	576	0.02	0.017	3.8	2.6	8.69	9.5	12.2	3.0	4.3
C1.3A	C1.3A	0.16	0.83	0.92	0.14	0.15	23	0.24	0.027	3.4	0	U	0.020	0.0	112	0.02	0.020	4.1	0.5	5.00	11.4	14.7	1.6	2.2
C1.3B	C1.3B	0.21	0.77	0.86	0.16	0.18	44	0.24	0.045	4.7	0	U	0.020	0.0	154	0.02	0.021	4.2	0.6	5.31	11.2	14.4	1.8	2.6
C1.3	C1.3	0.37	0.80	0.89	0.30	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	5.31	11.2	14.4	3.3	4.8
C1.4	C1.4	0.80	0.66	0.74	0.53	0.59	90	0.24	0.031	9.7	138	U	0.069	0.5	116	0.02	0.025	4.6	0.4	10.63	8.8	11.2	4.6	6.6
C1.5	C1.5	0.61	0.60	0.68	0.37	0.42	47	0.24	0.045	5.0	0	U	0.019	0.0	578	0.02	0.031	5.1	1.9	6.85	10.3	13.3	3.8	5.5
C1.6	C1.6	0.63	0.64	0.72	0.41	0.46	39	0.24	0.017	6.3	48	U	0.019	0.4	64	0.02	0.011	3.0	0.4	7.01	10.3	13.2	4.2	6.0
C1.7	C1.7	0.83	0.65	0.73	0.54	0.61	37	0.24	0.044	4.1	34	U	0.053	0.2	304	0.02	0.031	5.1	1.0	5.28	11.2	14.5	6.1	8.8
C1.8	C1.8	0.43	0.62	0.69	0.26	0.30	35	0.24	0.024	5.0	0	U	0.019	0.0	505	0.02	0.033	5.2	1.6	6.64	10.5	13.4	2.8	4.0
C1.9	C1.9	0.32	0.60	0.68	0.19	0.22	77	0.24	0.043	7.5	64	U	0.078	0.2	44	0.02	0.012	3.2	0.2	7.95	9.8	12.6	1.9	2.7
C2.1	C2.1	0.46	0.70	0.79	0.32	0.36	50	0.24	0.030	6.1	73	U	0.021	0.5	45	0.02	0.004	1.8	0.4	7.05	10.2	13.1	3.3	4.7
C2.2	C2.2	0.70	0.61	0.69	0.43	0.49	45	0.24	0.013	7.9	57	U	0.020	0.4	164	0.02	0.005	2.0	1.3	9.62	9.1	11.7	3.9	5.7
C2.3	C2.3	0.58	0.68	0.76	0.39	0.44	84	0.24	0.023	10.3	67	U	0.016	0.5	149	0.02	0.018	3.9	0.6	11.50	8.5	10.8	3.4	4.8
C2.4	C2.4	0.74	0.59	0.67	0.44	0.50	69	0.24	0.018	9.7	53	U	0.023	0.4	266	0.02	0.022	4.3	1.0	11.11	8.6	11.0	3.8	5.5
C2.5	C2.5	0.44	0.66	0.74	0.29	0.33	46	0.24	0.064	4.2	78	U	0.019	0.6	193	0.02	0.02	4.1	0.8	5.60	11.0	14.2	3.2	4.6
C2.6	C2.6	0.52	0.65	0.73	0.34	0.38	52	0.24	0.035	5.9	71	U	0.010	0.7	31	0.02	0.018	3.9	0.1	6.80	10.4	13.3	3.5	5.0
C2.7	C2.7	0.30	0.65	0.73	0.20	0.22	17	0.24	0.038	2.3	0	U	0.020	0.0	286	0.02	0.039	5.7	0.8	5.00	11.4	14.7	2.2	3.2
C2.8	C2.8	0.33	0.60	0.68	0.20	0.22	50	0.24	0.021	7.1	0	U	0.02	0.0	414	0.02	0.04	5.8	1.2	8.25	9.7	12.4	1.9	2.8
C3.1	C3.1	0.53	0.67	0.75	0.35	0.40	79	0.24	0.018	10.8	41	U	0.024	0.3	97	0.02	0.0098	2.9	0.6	11.66	8.5	10.8	3.0	4.3
C3.2	C3.2	0.35	0.65	0.73	0.23	0.26	16	0.24	0.035	2.3	0	U	0.020	0.0	176	0.02	0.046	6.2	0.5	5.00	11.4	14.7	2.6	3.8

DATE

NO. REVISON

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER

8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS

DRAINAGE AREA
CALCULATIONS 1 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 27 OF 76

STREET FLOW AND INLET CALCULATIONS
100 YEAR STORM

Inlet No.	Inlet Type	Drainage Area	Q 100 (cfs)	Q pass (cfs)	Q total (cfs)	STREET CAPACITY: Street Width F-F (ft)	Crown Type	Curb Height (ft)	Gutter Slope (%)	a (ft)	Yo (ft)	Crown Height (ft)	Ponded Width (+) (ft)	INLET ON GRADE CAPACITY: Eo	S'w	Sx	Se	LT	L	E	Qi	Qpass (cfs)	Pass to Inlet #	SUMP INLET CAPACITY: Qtotal (cfs)	CURB (with Depression): Length (ft)	d (ft)	d (ft) (d ≤ h + a)	AREA (without Depression): Length (ft)	h (ft)	d (ft) (d ≤ h)	do (ft) Orifice (d ≥ 1.4h)
A1.1A	-	2.78	16.1	0.0	16.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A1.1B	-	3.20	25.9	0.0	25.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A1.1C	-	2.25	15.6	0.0	15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A1.1	S-1	8.23	46.3	0.0	46.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		46.3	-	-	-	24.0	0.50	0.7	0.2
Culvert B	S-1	2.95	19.7	0.0	19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A4.1	G-1	0.62	6.8	0.2	7.0	26	P	0.33	6.46%	0.46	0.34	0.33	FULL	0.28	0.31	0.03	0.11	26.7	10	0.57	4.00	3.0	A4.4	-	-	-	-	-	-	-	-
A4.2	G-1	0.21	2.4	0.4	2.8	26	P	0.33	6.46%	0.46	0.25	0.33	6.71	0.49	0.31	0.03	0.18	13.7	10	0.90	2.52	0.3	A4.4	-	-	-	-	-	-	-	-
A4.3	G-1	2.15	15.2	0.0	15.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		15.2	-	-	-	16.0	0.50	0.5	0.5
A4.4A	-	0.11	1.3	0.0	1.3	26	P	0.33	4.58%	0.46	0.21	0.33	5.05	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A4.4B	-	0.59	6.5	0.0	6.5	26	P	0.33	2.46%	0.46	0.39	0.33	FULL	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A4.4	S-1	0.70	7.7	3.3	11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		11.0	10.0	0.5	0.52	-	-	-	-
B1.1	G-1	0.07	0.7	0.0	0.7	26	P	0.33	8.00%	0.46	0.16	0.33	3.60	0.76	0.31	0.03	0.26	6.6	10	1.00	0.74	0.0									
B1.2	G-1	0.42	5.7	0.0	5.7	26	P	0.33	8.00%	0.46	0.31	0.33	9.67	0.36	0.31	0.03	0.14	23.0	10	0.64	3.64	2.0	B1.5								
B1.3	G-1	0.54	5.2	0.0	5.2	25	S	0.33	6.37%	0.46	0.19	0.50	9.47	0.37	0.31	0.02	0.13	21.1	10	0.69	3.59	1.6	B1.5	-	-	-	-	-	-	-	-
B1.4	G-1	0.23	1.5	0.0	1.5	26	P	0.33	0.80%	0.46	0.29	0.33	8.64	0.40	0.31	0.03	0.15	6.3	10	1.00	1.53	0.0		-	-	-	-	-	-	-	-
B1.5	G-1	0.32	2.6	3.7	6.2	25	S	0.33	6.37%	0.46	0.20	0.50	10.11	0.35	0.31	0.02	0.13	23.3	20	0.97	6.04	0.2	B1.8	-	-	-	-	-	-	-	-
B1.6	G-1	0.84	6.9	0.0	6.9	25	S	0.33	4.60%	0.46	0.22	0.50	11.18	0.32	0.31	0.02	0.12	23.1	20	0.97	6.73	0.2	B1.7	-	-	-	-	-	-	-	-
B1.7	G-1	0.39	3.1	0.2	3.3	25	S	0.33	4.60%	0.46	0.17	0.50	8.43	0.41	0.31	0.02	0.15	14.9	20	1.00	3.26	0.0		-	-	-	-	-	-	-	-
B1.8	G-1	0.55	5.4	0.2	5.5	25	S	0.33	3.70%	0.46	0.21	0.50	10.72	0.33	0.31	0.02	0.12	19.4	20	1.00	5.55	0.0		-	-	-	-	-	-	-	-
B1.9	G-1	0.18	1.2	0.0	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		1.2	-	-	-	16.0	0.50	0.1	0.1
B1.10	G-1	0.37	3.6	0.0	3.6	25	S	0.33	3.14%	0.46	0.19	0.50	9.43	0.37	0.31	0.02	0.13	14.6	20	1.00	3.62	0.0		-	-	-	-	-	-	-	-
B1.11	G-1	0.55	4.9	0.0	4.9	25	S	0.33	3.14%	0.46	0.21	0.50	10.60	0.33	0.31	0.02	0.12	17.5	20	1.00	4.95	0.0		-	-	-	-	-	-	-	-
B1.12	G-1	0.42	4.4	0.0	4.4	25	S	0.33	3.14%	0.46	0.20	0.50	10.10	0.35	0.31	0.02	0.13	16.2	20	1.00	4.36	0.0		-	-	-	-	-	-	-	-
B1.13	G-1	0.43	4.3	0.0	4.3	25	S	0.33	3.14%	0.46	0.20	0.50	10.03	0.35	0.31	0.02	0.13	16.1	20	1.00	4.28	0.0		-	-	-	-	-	-	-	-
B1.14	G-1	0.43	4.1	0.0	4.1	25	S	0.33	5.10%	0.46	0.18	0.50	9.02	0.38	0.31	0.02	0.14	17.4	20	1.00	4.10	0.0		-	-	-	-	-	-	-	-
B1.15	G-1	0.42	4.1	0.0	4.1	25	S	0.33	5.10%	0.46	0.18	0.50	8.99	0.39	0.31	0.02	0.14	17.3	20	1.00	4.07	0.0		-	-	-	-	-	-	-	-
B1.16	G-1	2.82	19.1	0.0	19.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		19.1	-	-	-	16.0	0.50	0.5	0.5
B2.1	G-1	0.74	7.1	0.0	7.1	26	P	0.33	2.90%	0.46	0.39	0.33	FULL	0.28	0.31	0.03	0.11	21.1	10	0.68	4.88	2.2	B2.2	-	-	-	-	-	-	-	-
B2.2A	-	0.46	4.1	0.0	4.1	26	P	0.33	4.50%	0.46	0.31	0.33	9.43	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
B2.2B	-	1.04	10.0	0.0	10.0	26	P	0.33	0.30%	0.46	0.64	0.33	FULL	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
B2.2	S-1	1.50	13.6	2.2	15.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		15.8	20.0	0.45	0.45	-	-	-	-
B2.3A	-	0.39	3.5	0.0	3.5	26	P	0.33	0.40%	0.46	0.43	0.33	FULL	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
B2.3B	-	0.34	3.9	0.0	3.9	26	P	0.33	0.30%	0.46	0.47	0.33	FULL	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
B2.3	S-1	0.73	7.0	0.0	7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		7.0	20.0	0.26	0.26	-	-	-	-
C0	-	3.10	23.1	0.0	23.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
C1.1	G-1	0.38	4.0	0.0	4.0	35	P	0.33	1.13%	0.46	0.36	0.50	FULL	0.21	0.31	0.03	0.09	13.8	10	0.90	3.59	0.4	C1.3	-	-	-	-	-	-	-	-
C1.2	G-1	0.50	4.3	0.0	4.3	35	P	0.33	1.70%	0.46	0.35	0.50	FULL	0.21	0.31	0.03	0.09	16.2	10	0.82	3.58	0.8	C1.4	-	-	-	-	-	-	-	-
C1.3A	-	0.16	2.2	0.0	2.2	35	P	0.33	0.40%	0.46	0.36	0.50	FULL	0.21	0.31	0.03	0.09	7.9	10	1.00	2.22	0.0		-	-	-	-	-	-	-	-
C1.3B	-	0.21	2.6	0.0	2.6	35	P	0.33	0.80%	0.46	0.33	0.50	FULL	0.21	0.31	0.03	0.09	10.4	10	1.00	2.59	0.0		-	-	-	-	-	-	-	-
C1.3	S-1	0.37	4.8	0.4	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		5.2	10.0	0.32	0.32	-	-	-	-
C1.4	G-1	0.80	6.6	0.8	7.4	26	P	0.33	1.13%	0.46	0.46	0.33	FULL	0.28	0.31	0.03	0.11	16.2	10	0.82	6.08	1.3	C1.6	-	-	-	-	-	-	-	-
C1.5	G-1	0.61	5.5	0.0	5.5	26	P	0.33	1.13%	0.46	0.42	0.33	FULL	0.28	0.31	0.03	0.11	14.3	10	0.89	4.88	0.6	C1.8	-	-	-	-	-	-	-	-
C1.6	G-1	0.63	6.0	1.3	7.3	26	P	0.33	1.13%	0.46	0.46	0.33	FULL	0.28	0.31	0.03	0.11	16.1	10	0.83	6.04	1.3	C1.7	-	-	-	-	-	-	-	-
C1.7	G-1	0.83	8.8	1.4	10.3	26	P	0.33	4.00%	0.46	0.42	0.33	FULL	0.28	0.31	0.03	0.11	27.1	20	0.91	9.33	0.9	C1.9	-	-	-	-	-	-	-	-
C1.8	G-1	0.43	4.0	0.6	4.6	26	P	0.33	1.24%	0.46	0.39	0.33	FULL	0.28	0.31	0.03	0.11	13.7	10	0.91	4.20	0.4	A4.2	-	-	-	-	-	-	-	-
C1.9	G-1	0.32	2.7	0.9	3.7	26	P	0.33	1.24%	0.46	0.36	0.33	FULL	0.28	0.31	0.03	0.11	12.4	10	0.95	3.48	0.2	A4.1	-	-	-	-	-	-	-	-
C2.1	G-1	0.46	4.7	0.0	4.7	26	P	0.33	0.50%	0.46	0.46	0.33	FULL	0.28	0.31	0.03	0.11	10.5	10	1.00	4.73	0.0		-	-	-	-	-	-	-	-
C2.2	G-1	0.70	5.7	0.0	5.7	26	P	0.33	1.00%	0.46	0.43	0.33	FULL	0.28	0.31	0.03	0.11	13.9	10	0.90	5.09	0.6	C2.4	-	-	-	-	-	-	-	-
C2.3	G-1	0.58	4.8	0.0	4.8	26	P	0.33	1.00%	0.46	0.41	0.33	FULL	0.28	0.31	0.03	0.11	13.0	10	0.93	4.45	0.3	C2.5	-	-	-	-	-	-	-	-
C2.4	G-1	0.74	5.5	0.6	6.1	26	P	0.33	1.00%	0.46	0.44	0.33	FULL	0.28	0.31	0.03	0.11	14.3	10	0.88	5.35	0.7	C2.7	-	-	-	-	-	-	-	-
C2.5	G-1	0.44	4.6	0.3	5.0	26	P	0.33	1.62%	0.46	0.38	0.33	FULL	0.28	0.31	0.03	0.11	15.2	10	0.85	4.24	0.7	C2.6	-	-	-	-	-	-	-	-
C2.6	G-1	0.52	5.0	0.7	5.8	26	P	0.33	1.62%	0.46	0.40	0.33	FULL	0.28	0.31	0.03	0.11	16.2	20	1.00	5.77	0.0		-	-	-	-	-	-	-	-
C2.7	G-1	0.30	3.2	1.4	4.6	26	P	0.33	4.15%	0.46	0.32	0.33	10.90	0.33	0.31	0.03	0.13	18.2	20	1.00	4.63	0.0		-	-	-	-	-	-	-	-
C2.8	G-1	0.33	2.8	0.0	2.8	26	P	0.33	4.15%	0.46	0.27	0.33	7.53	0.45	0.31	0.03	0.16	12.6	10	0.94	2.61	0.2	C1.7	2.8	10.0	0.2	0.21	-	-	-	-
C3.1	G-1	0.53	4.3	0.0	4.3	26	P	0.33	0.98%	0.46	0.40	0.33	FULL	0.28	0.31	0.03	0.11	12.3	10	0.95	4.06	0.2	C3.2	-	-	-	-	-	-	-	-
C3.2	G-1	0.35	3.8	0.2	4.0	26	P	0.33	4.15%	0.46	0.31	0.33	9.46	0.37	0.31	0.03	0.14	16.1	10	0.83	3.28	0.7	C2.7	-	-	-	-	-	-	-	-

STREET FLOW AND INLET CALCULATIONS
25 YEAR STORM

Inlet No.	Inlet Type	Drainage Area	Q 25 (cfs)	Q pass (cfs)	Q total (cfs)	STREET CAPACITY: Street Width F-F (ft)	Crown Type	Curb Height (ft)	Gutter Slope (%)	a (ft)	Yo (ft)	Crown Height (ft)	Ponded Width (ft)	INLET ON GRADE CAPACITY: Eo	S'w	Sx	Se	LT	L	E	Qi	Qpass (cfs)	Pass to Inlet #	SUMP INLET CAPACITY: Qtotal (cfs)	CURB (with Depression): Length (ft)	d (ft)	d (ft) (d ≤ h + a)	AREA (without Depression): Length (ft)	h (ft)	d (ft) (d ≤ h)	do (ft) Orifice (d ≥ 1.4h)
A1.1A	-	2.78	10.9	0.0	10.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A1.1B	-	3.20	17.4	0.0	17.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A1.1C	-	2.25	10.4	0.0	10.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A1.1	S-1	8.23	31.2	0.0	31.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		31.2	-	-	-	24.0	0.50	0.6	0.6
Culvert B	S-1	2.95	13.3	0.0	13.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A4.1	G-1	0.62	4.7	0.0	4.7	26	P	0.33	6.46%	0.46	0.30	0.33	9.11	0.38	0.31	0.03	0.14	19.4	10	0.73	3.43	1.3	A4.4	-	-	-	-	-	-	-	-
A4.2	G-1	0.21	1.6	0.1	1.7	26	P	0.33	6.46%	0.46	0.21	0.33	5.29	0.59	0.31	0.03	0.21	10.1	10	1.00	1.68	0.0		-	-	-	-	-	-	-	-
A4.3	G-1	2.15	10.2	0.0	10.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		10.2	-	-	-	16.0	0.50	0.4	0.4
A4.4A	-	0.11	0.9	0.0	0.9	26	P	0.33	4.58%	0.46	0.18	0.33	4.33	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A4.4B	-	0.59	4.5	0.0	4.5	26	P	0.33	2.46%	0.46	0.35	0.33	FULL	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-
A4.4	S-1	0.70	5.3	1.3	6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		6.6	10.0	0.4	0.37	-	-	-	-
B1.1	G-1	0.07	0.5	0.0	0.5	26	P	0.33	8.00%	0.46	0.14	0.33	3.11	0.83	0.31	0.03	0.28	5.4	10	1.00	0.51	0.0									
B1.2	G-1	0.42	4.0	0.0	4.0	26	P	0.33	8.00%	0.46	0.27	0.33	7.68	0.44	0.31	0.03	0.16	18.0	10	0.77	3.06	0.9	B1.5								
B1.3	G-1	0.54	3.6	0.0	3.6	25	S	0.33	6.37%	0.46	0.16	0.50	8.23	0.42	0.31	0.02	0.15	16.9	10	0.80	2.87	0.7	B1.5	-	-	-	-	-	-	-	-
B1.4	G-1	0.23	1.1	0.0	1.1	26	P	0.33	0.80%	0.46	0.26	0.33	6.95	0.48	0.31	0.03	0.17	4.9	10	1.00	1.05	0.0		-	-	-	-	-	-	-	-
B1.5	G-1	0.32	1.8	1.6	3.4	25	S	0.33	6.37%	0.46	0.16	0.50	8.08	0.42	0.31	0.02	0.15	16.5	20	1.00	3.43	0.0		-	-	-	-	-	-	-	-
B1.6	G-1	0.84	4.8	0.0	4.8	25	S	0.33	4.60%	0.46	0.20	0.50	9.77	0.36	0.31	0.02	0.13	18.7	20	1.00	4.83	0.0		-	-	-	-	-	-	-	-
B1.7	G-1	0.39	2.1	0.0	2.1	25	S	0.33	4.60%	0.46	0.14	0.50	7.20	0.46	0.31	0.02	0.16	11.6	20	1.00	2.14	0.0		-	-	-	-	-	-	-	-
B1.8	G-1	0.55	3.7	0.0	3.7	25	S	0.33	3.70%	0.46	0.18	0.50	9.20	0.38	0.31	0.02	0.14	15.3	20	1.00	3.69	0.0		-	-	-	-	-	-	-	-
B1.9	G-1	0.18	0.8	0.0	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	-	-	16.0	0.50	0.1	0.1
B1.10	G-1	0.37	2.5	0.0	2.5	25	S	0.33	3.14%	0.46	0.16	0.50	8.23	0.42	0.31	0.02	0.15	11.8	20	1.00	2.52	0.0		-	-	-	-	-	-	-	-
B1.11	G-1	0.55	3.4	0.0	3.4	25	S	0.33	3.14%	0.46	0.21	0.50	10.60	0.33	0.31	0.02	0.12	17.48	20	1.00	4.95	0.0		-	-	-	-	-	-	-	-
B1.12	G-1	0.42	3.0	0.0	3.0	25	S	0.33	3.14%	0.46	0.20	0.50	10.10	0.35	0.31	0.02	0.13	16.23	20	1.00	4.36	0.0		-	-	-	-	-	-	-	-
B1.13	G-1	0.43	3.0	0.0	3.0	25	S	0.33	3.14%	0.46	0.20	0.50	10.03	0.35	0.31	0.02	0.13	16.05	20	1.00	4.28	0.0		-	-	-	-	-	-	-	-
B1.14	G-1	0.43	2.9	0.0	2.9	25	S	0.33	5.10%	0.46	0.18	0.50	9.02	0.38	0.31	0.02	0.14	17.41	20	1.00	4.10	0.0		-	-	-	-	-	-	-	-
B1.15	G-1	0.42	2.8	0.0	2.8	25	S	0.33	5.10%	0.46	0.18	0.50	8.99	0.39	0.31	0.02	0.14	17.33	20	1.00	4.07	0.0		-	-	-	-	-	-	-	-
B1.16	G-1	2.82	12.9	0.0	12.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.9	-	-	-	16.0	0.50	0.4	0.4
B2.1	G-1	0.74	5.0	0.0	5.0	26	P	0.33	2.90%	0.46	0.35	0.33	FULL	0.28	0.31	0.03	0.11	18.1	10	0.76	3.78	1.2	B2.2	-	-	-	-	-	-	-	-
B2.2A	-	0.46	2.8	0.0	2.8	26	P	0.33	4.50%	0.46	0.27	0.33	7.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2.2B	-	1.04	6.9	0.0	6.9	26	P	0.33	0.30%	0.46	0.57	0.33	FULL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2.2	S-1	1.50	9.4	1.2	10.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.5	20.0	0.34	0.34	-	-	-	-
B2.3A	-	0.39	2.4	0.0	2.4	26	P	0.33	0.40%	0.46	0.38	0.33	FULL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2.3B	-	0.34	2.7	0.0	2.7	26	P	0.33	0.30%	0.46	0.41	0.33	FULL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B2.3	S-1	0.73	4.8	0.0	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	20.0	0.20	0.20	-	-	-	-
C0	-	3.10	15.5	0.0	15.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C1.1	G-1	0.38	2.8	0.0	2.8	35	P	0.33	1.13%	0.46	0.32	0.50	7.04	0.47	0.31	0.03	0.17	8.2	10	1.00	2.77	0.0		-	-	-	-	-	-	-	-
C1.2	G-1	0.50	3.0	0.0	3.0	35	P	0.33	1.70%	0.46	0.31	0.50	6.68	0.49	0.31	0.03	0.18	9.4	10	1.00	3.02	0.0		-	-	-	-	-	-	-	-
C1.3A	-	0.16	1.6	0.0	1.6	35	P	0.33	0.40%	0.46	0.32	0.50	6.86	0.48	0.31	0.03	0.18	4.7	10	1.00	1.56	0.0		-	-	-	-	-	-	-	-
C1.3B	-	0.21	1.8	0.0	1.8	35	P	0.33	0.80%	0.46	0.30	0.50	6.31	0.52	0.31	0.03	0.19	5.9	10	1.00	1.81	0.0		-	-	-	-	-	-	-	-
C1.3	S-1	0.37	3.3	0.0	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	10.0	0.2	0.24	-	-	-	-
C1.4	G-1	0.80	4.6	0.0	4.6	26	P	0.33	1.13%	0.46	0.40	0.33	FULL	0.28	0.31	0.03	0.11	13.3	10	0.92	4.24	0.4	C1.6	-	-	-	-	-	-	-	-
C1.5	G-1	0.61	3.8	0.0	3.8	26	P	0.33	1.13%	0.46	0.37	0.33	FULL	0.28	0.31	0.03	0.11	12.2	10	0.95	3.62	0.2	C1.8	-	-	-	-	-	-	-	-
C1.6	G-1	0.63	4.2	0.4	4.5	26	P	0.33	1.13%	0.46	0.40	0.33	FULL	0.28	0.31	0.03	0.11	13.2	10	0.92	4.19	0.3	C1.7	-	-	-	-	-	-	-	-
C1.7	G-1	0.83	6.1	0.3	6.4	26	P	0.33	4.00%	0.46	0.36	0.33	FULL	0.28	0.31	0.03	0.11	22.3	20	0.98	6.33	0.1	C1.9	-	-	-	-	-	-	-	-
C1.8	G-1	0.43	2.8	0.2	2.9	26	P	0.33	1.24%	0.46	0.34	0.33	FULL	0.28	0.31	0.03	0.11	11.3	10	0.98	2.88	0.1	A4.2	-	-	-	-	-	-	-	-
C1.9	G-1	0.32	1.9	0.1	2.0	26	P	0.33	1.24%	0.46	0.30	0.33	8.93	0.39	0.31	0.03	0.14	8.2	10	1.00	2.00	0.0		-	-	-	-	-	-	-	-
C2.1	G-1	0.46	3.3	0.0	3.3	26	P	0.33	0.50%	0.46	0.41	0.33	FULL	0.28	0.31	0.03	0.11	9.0	10	1.00	3.31	0.0		-	-	-	-	-	-	-	-
C2.2	G-1	0.70	3.9	0.0	3.9	26	P	0.33	1.00%	0.46	0.39	0.33	FULL	0.28	0.31	0.03	0.11	12.0	10	0.96	3.78	0.2	C2.4	-	-	-	-	-	-	-	-
C2.3	G-1	0.58	3.4	0.0	3.4	26	P	0.33	1.00%	0.46	0.37	0.33	FULL	0.28	0.31	0.03	0.11	11.2	10	0.98	3.29	0.1	C2.5	-	-	-	-	-	-	-	-
C2.4	G-1	0.74	3.8	0.2	3.9	26	P	0.33	1.00%	0.46	0.39	0.33	FULL	0.28	0.31	0.03	0.11	12.0	10	0.96	3.79	0.2	C2.7	-	-	-	-	-	-	-	-
C2.5	G-1	0.44	3.2	0.1	3.3	26	P	0.33	1.62%	0.46	0.33	0.33	FULL	0.28	0.31	0.03	0.11	12.8	10	0.94	3.05	0.2	C2.6	-	-	-	-	-	-	-	-
C2.6	G-1	0.52	3.5	0.2	3.7	26	P	0.33	1.62%	0.46	0.35	0.33	FULL	0.28	0.31	0.03	0.11	13.5	20	1.00	3.71	0.0		-	-	-	-	-	-	-	-
C2.7	G-1	0.30	2.2	0.3	2.5	26	P	0.33	4.15%	0.46	0.26	0.33	7.09	0.47	0.31	0.03	0.17	11.7	20	1.00	2.49	0.0		-	-	-	-	-	-	-	-
C2.8	G-1	0.33	1.9	0.0	1.9	26	P	0.33	4.15%	0.46	0.24	0.33	6.22	0.52	0.31	0.03	0.19	10.0	10	1.00	1.92	0.0		-	-	-	-	-	-	-	-
C3.1	G-1	0.53	3.0	0.0	3.0	26	P	0.33	0.98%	0.46	0.35	0.33	FULL	0.28	0.31	0.03	0.11	10.6	10	0.99	2.96	0.0		-	-	-	-	-	-	-	-
C3.2	G-1	0.35	2.6	0.0	2.6	26	P	0.33	4.15%	0.46	0.27	0.33	7.25	0.46	0.31	0.03	0.17	12.0	10	0.96	2.49	0.1	C2.7	-	-	-	-	-	-	-	-

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

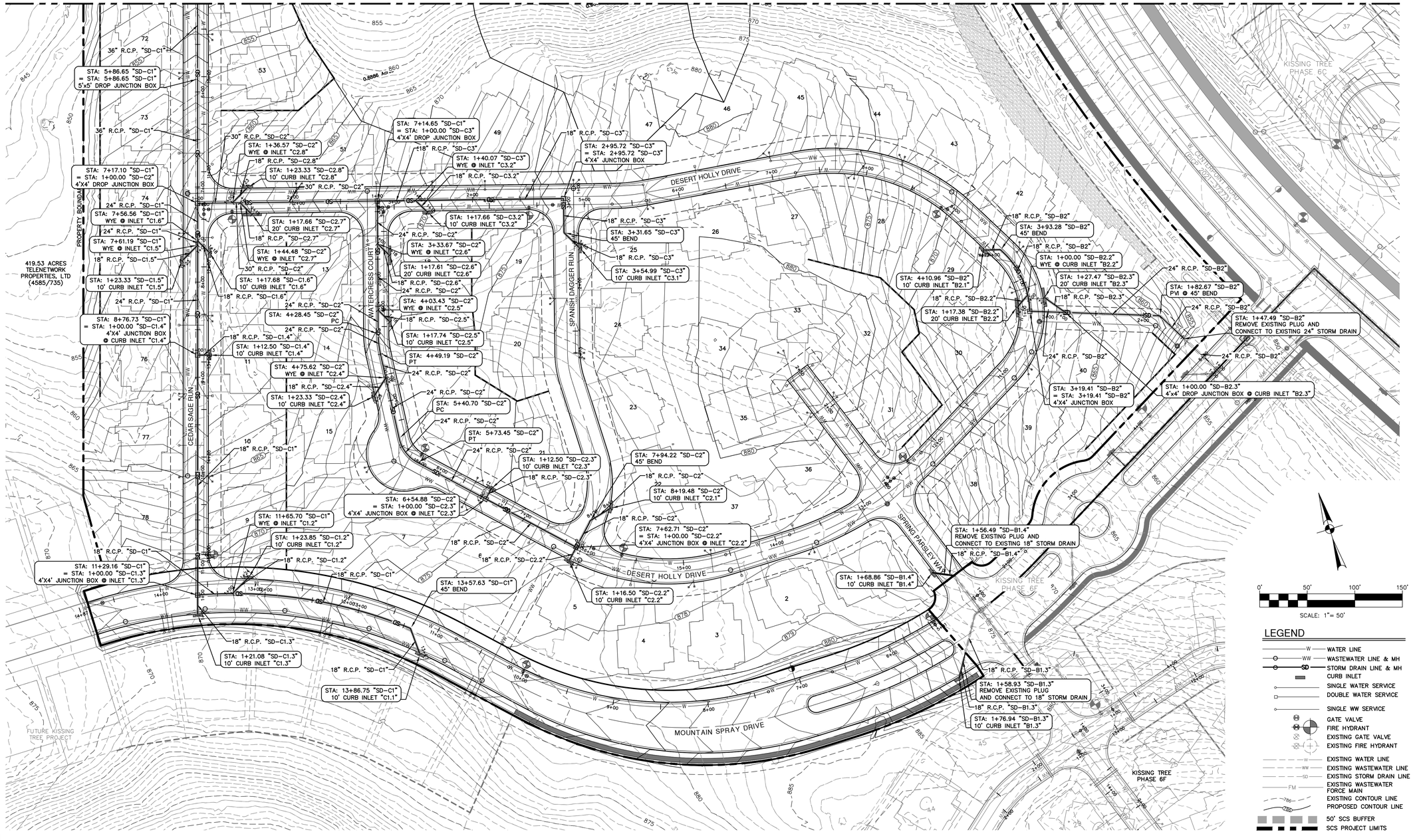
KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS

DRAINAGE AREA
CALCULATIONS 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN

2023-XXXX

MATCHLINE - SEE SHEET 30 OF 77



LEGEND

- W — WATER LINE
- WW — WASTEWATER LINE & MH
- SD — STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- FM — EXISTING WASTEWATER FORCE MAIN
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- 50' SCS BUFFER
- SCS PROJECT LIMITS

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
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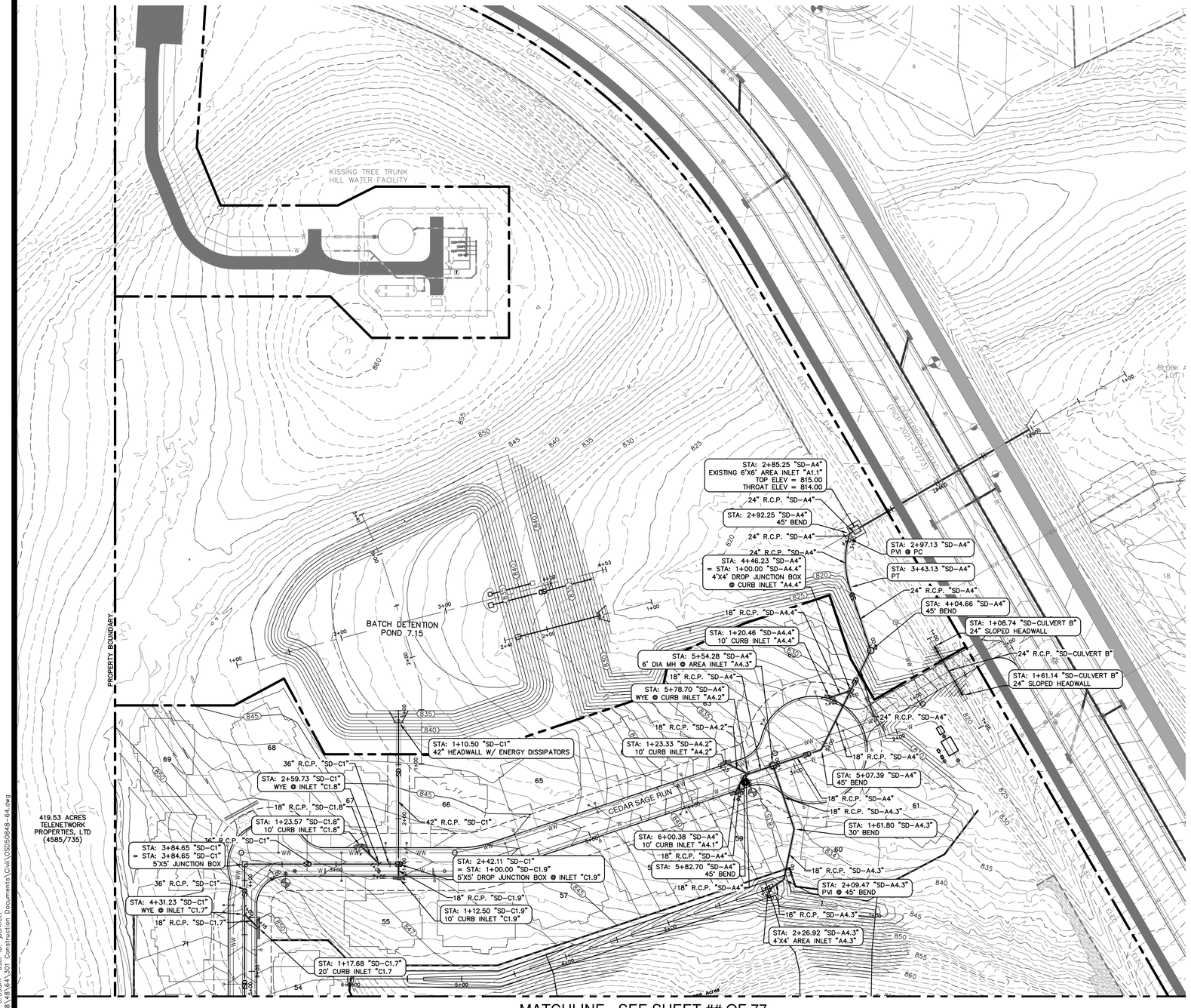
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
OVERALL STORM DRAIN PLAN 1 OF 2

CITY JOB No.	XXXXXX
JOB NO.	50848-64
DATE	August 21, 2023
DESIGNER	
CHECKED	SC DRAWN
SHEET	29 OF 76

2023-XXXX



SCALE: 1"= 50'

0' 50' 100' 150'

LEGEND

- WATER LINE
- WASTEWATER LINE & MH
- STORM DRAIN LINE & MH
- CURB INLET
- SINGLE WATER SERVICE
- DOUBLE WATER SERVICE
- SINGLE WW SERVICE
- GATE VALVE
- FIRE HYDRANT
- EXISTING GATE VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE
- EXISTING STORM DRAIN LINE
- EXISTING WASTEWATER FORCE MAIN
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- 50' SCS BUFFER
- SCS PROJECT LIMITS

NO.	REVISION	DATE

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8/21/23

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TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
OVERALL STORM DRAIN PLAN 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 30 OF 76

Date: Aug 21, 2023, 9:39am User ID: Jennett
File: H:\Projects\5084\48\64\301 Construction Documents\Civil\OSD50848-64.dwg

Paso Robles, Phase 6E: Water Quality Treatment Summary

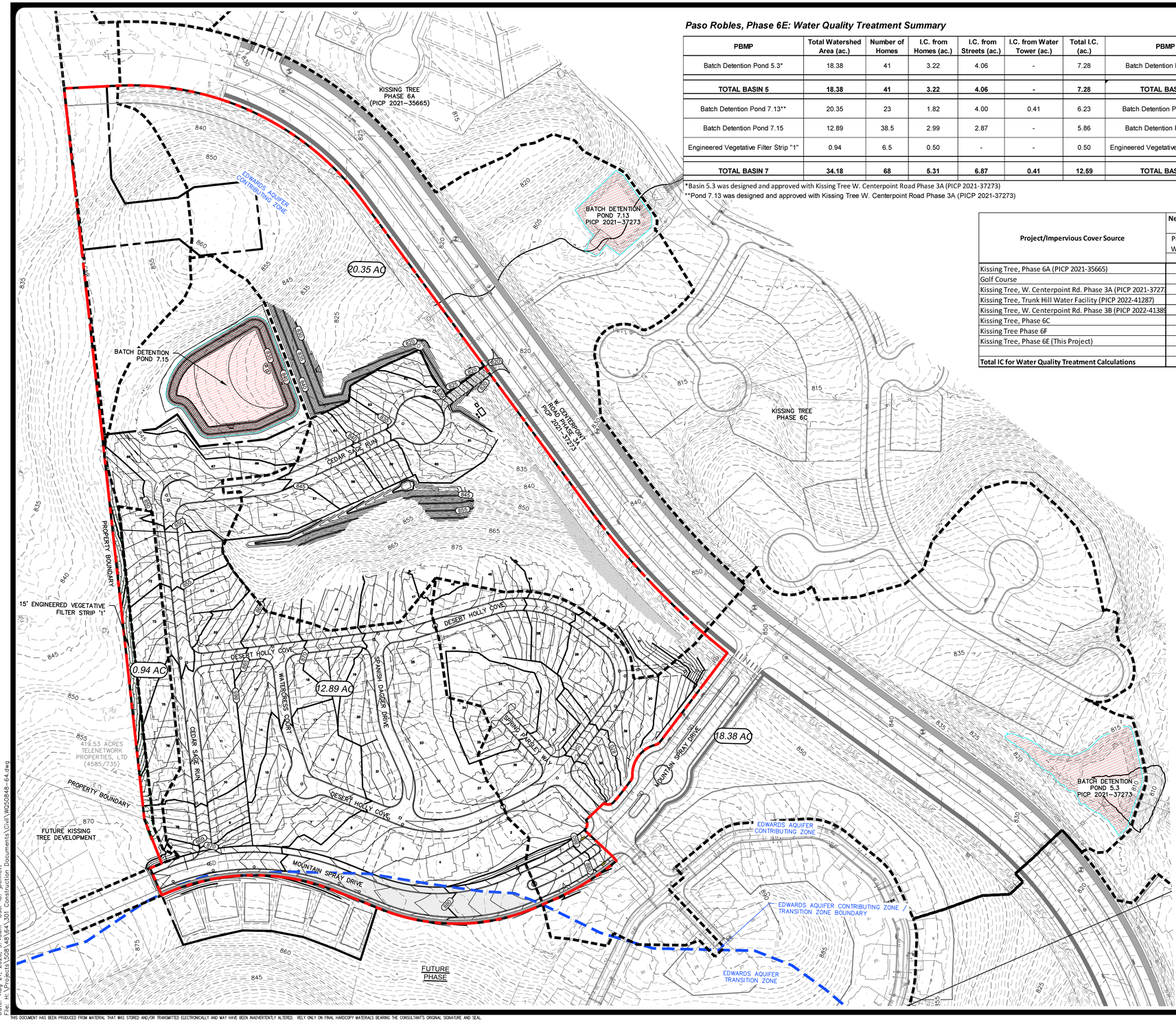
PBMP	Total Watershed Area (ac.)	Number of Homes	I.C. from Homes (ac.)	I.C. from Streets (ac.)	I.C. from Water Tower (ac.)	Total I.C. (ac.)	PBMP	70% TSS Removal Required (lb.)	85% TSS Removal Required (lb.)	Total TSS Removal Required (lb.)	TSS Removal Provided (lb.)
Batch Detention Pond 5.3*	18.38	41	3.22	4.06	-	7.28	Batch Detention Pond 5.3*	-	6,943	6,943	7,085
TOTAL BASIN 5	**18.38**	**41**	**3.22**	**4.06**	**-**	**7.28**	**TOTAL BASIN 5**	**-**	**6,943**	**6,943**	**7,085**
Batch Detention Pond 7.13**	20.35	23	1.82	4.00	0.41	6.23	Batch Detention Pond 7.13**	-	5,942	5,942	6,132
Batch Detention Pond 7.15	12.89	38.5	2.99	2.87	-	5.86	Batch Detention Pond 7.15	377	5,131	5,508	5,923
Engineered Vegetative Filter Strip "1"	0.94	6.5	0.50	-	-	0.50	Engineered Vegetative Filter Strip "1"	-	477	477	492
TOTAL BASIN 7	**34.18**	**68**	**5.31**	**6.87**	**0.41**	**12.59**	**TOTAL BASIN 7**	**377**	**11,549**	**11,927**	**12,547**

*Basin 5.3 was designed and approved with Kissing Tree W. Centerpoint Road Phase 3A (PICP 2021-37273)
**Pond 7.13 was designed and approved with Kissing Tree W. Centerpoint Road Phase 3A (PICP 2021-37273)

Project/Impervious Cover Source	Net Impervious Cover Treated in Pond 5.3 Permitted with Kissing Tree, W. Centerpoint Rd. Phase 3A (PICP 2021-37273)	Net Impervious Cover Treated in Pond 7.13 Permitted with Kissing Tree, W. Centerpoint Rd. Phase 3A (PICP 2021-37273)	Net Impervious Cover Treated in Pond 7.15 Proposed With Kissing Tree, Phase 6E (This Project) (PICP 2023-XXXXX)
Kissing Tree, Phase 6A (PICP 2021-35665)	-	-	-
Golf Course	-	-	-
Kissing Tree, W. Centerpoint Rd. Phase 3A (PICP 2021-37273	0.71	1.52	-
Kissing Tree, Trunk Hill Water Facility (PICP 2022-41287)	-	0.405	-
Kissing Tree, W. Centerpoint Rd. Phase 3B (PICP 2022-41389	0.63	1.79	-
Kissing Tree, Phase 6C	2.13	0.43	-
Kissing Tree Phase 6F	1.69	-	-
Kissing Tree, Phase 6E (This Project)	2.12	2.08	5.86
Total IC for Water Quality Treatment Calculations	7.28	6.23	5.86

WATER QUALITY POND VOLUME SUMMARY

POND	VOLUME REQUIRED (CF)	VOLUME PROVIDED (CF)
POND 5.3	43,955	44,038
POND 7.13	43,465	45,265
POND 7.15	48,706	49,456



SCALE: 1"= 100'
0' 100' 200' 300'

LEGEND

- CZP PROJECT LIMITS (33.571 ACRES – 85% TSS REMOVAL)
- 70% TSS REMOVAL
- EDWARDS AQUIFER RECHARGE ZONE BOUNDARY LINE
- (0.50 AC) WATERSHED ACREAGE
- VEGETATIVE FILTER STRIP (HATCHING LIMITS TO BE DEFINED VEGETATIVE FILTER STRIP EASEMENT)

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

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TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
WATER QUALITY TREATMENT SUMMARY 1 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 39 OF 76

Date: Aug 21, 2023, 9:43am User ID: jbennett
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2023-XXXX

ENGINEERED VEGETATIVE FILTER STRIP "1"

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 6/26/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
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1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = Engineered VFS "1"

Total drainage basin/outfall area =	0.94	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.50	acres
Post-development impervious fraction within drainage basin/outfall area =	0.53	
$L_{M\ THIS\ BASIN}$ =	477	lbs. ADJUSTED FOR 85% TSS REMOVAL AND NOT 80%

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.94	acres
A_I =	0.50	acres
A_P =	0.44	acres
L_R =	492	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 492 lbs.

F = 1.00

BATCH POND 7.13

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

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where:
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P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 7.13

Total drainage basin/outfall area =	20.35	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	6.23	acres
Post-development impervious fraction within drainage basin/outfall area =	0.31	
$L_{M\ THIS\ BASIN}$ =	5942	lbs. ADJUSTED FOR 85% TSS REMOVAL AND NOT 80%

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
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Vortechs
Wet Basin
Wet Vault

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where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	20.35	acres
A_I =	6.23	acres
A_P =	14.12	acres
L_R =	6702	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 6132 lbs.

F = 0.91

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.26	
On-site Water Quality Volume =	34741	cubic feet

Calculations from RG-348 — Pages 3-36 to 3-37

Off-site area draining to BMP =	11.33	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	1481	cubic feet
Storage for Sediment =	7244	
Total Capture Volume (required water quality volume(s) x 1.20) =	43465	cubic feet

BATCH POND 5.3

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Phase 6E
Date Prepared: 6/7/2023

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where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal result
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = 5.3

Total drainage basin/outfall area =	18.38	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.28	acres 48% IMPERVIOUS COVER
Post-development impervious fraction within drainage basin/outfall area =	0.40	
$L_{M\ THIS\ BASIN}$ =	6943	lbs. ADJUSTED FOR 85% TSS REMOVAL AND NOT 80%

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
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where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	18.38	acres
A_I =	7.28	acres
A_P =	11.10	acres
L_R =	7744	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ = 7085 lbs.

F = 0.91

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.31	
On-site Water Quality Volume =	36629	cubic feet

Calculations from RG-348 — Pages 3-36 to 3-37

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	7326	
Total Capture Volume (required water quality volume(s) x 1.20) =	43955	cubic feet

NO.	REVISION	DATE

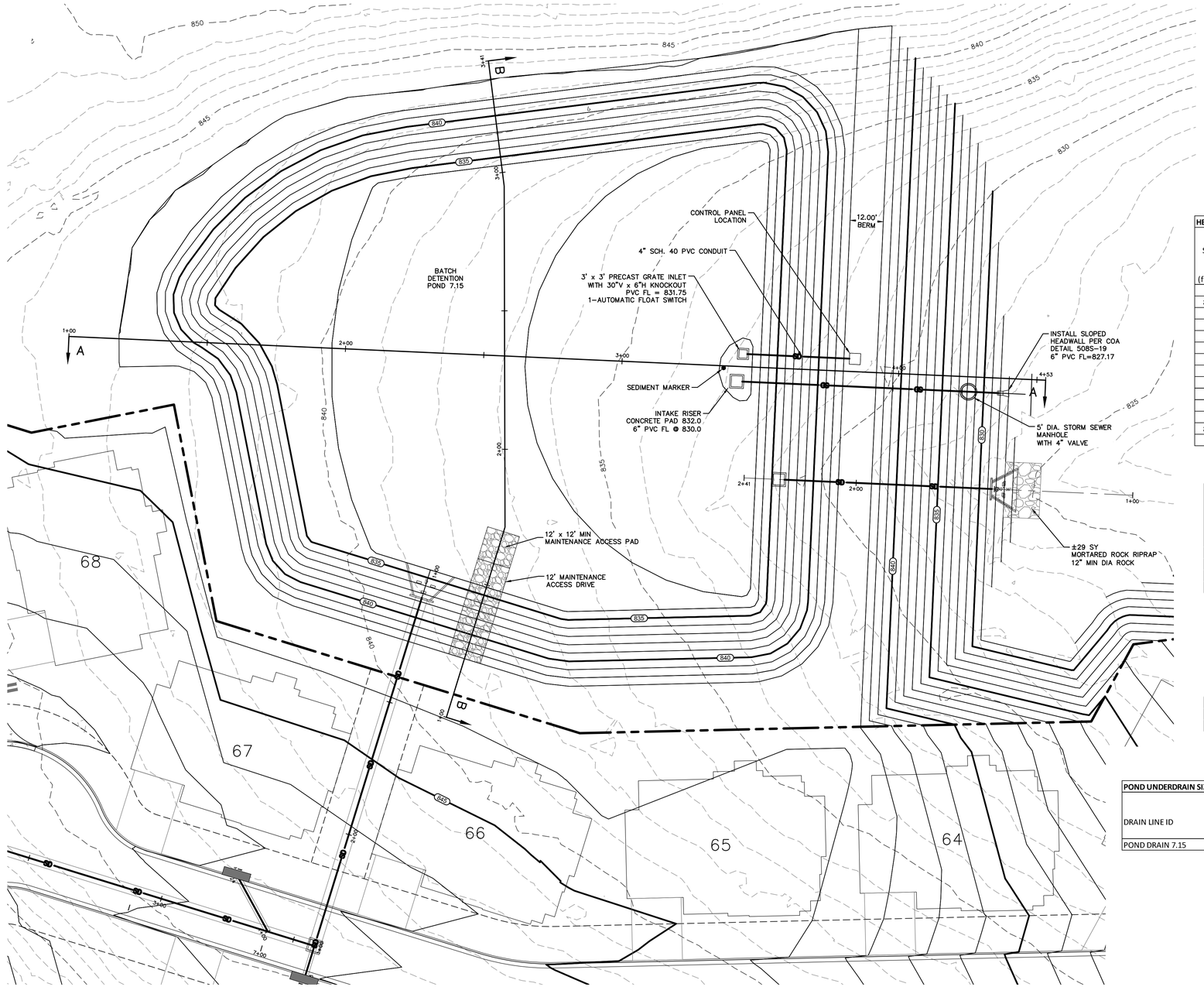
STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
WATER QUALITY TREATMENT
SUMMARY 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 40 OF 76

2023-XXXX



SCALE: 1"= 20'

0' 20' 40' 60'

NOTE:
MINIMUM BURY DEPTH OF ELECTRICAL CONDUIT AT POND SHALL BE 24 INCHES.

HEC-HMS: Water Quality Pond 7.15 Combined Elevation-Area-Storage Table

Stage (ft. msl)	Pond Area (sf)	Pond Area (ac)	Incremental Height (ft)	Incremental Volume Avg. End Area (cf)	Cumulative Volume (cf)	Cumulative Volume (ac-ft)	Comments
832	212	0.0049	---	---			
832.5	5,608	0.1287	0.50	1455	1455	0.03	Sed Marker @ 0.5 ft Sed Depth
833	11,004	0.2526	0.50	4,153.0	5,608.0	0.13	
834	23,980	0.5505	1.00	17,492.0	23,100.0	0.53	
835	28,732	0.6596	1.00	26,356.0	49,456.0	1.14	Water Quality Volume
836	30,745	0.7058	1.00	29,738.5	79,194.5	1.82	
837	32,816	0.7534	1.00	31,780.5	110,975.0	2.55	
838	34,944	0.8022	1.00	33,880.0	144,855.0	3.33	
839	37,128	0.8523	1.00	36,036.0	180,891.0	4.15	
840	39,368	0.9038	1.00	38,248.0	219,139.0	5.03	
841	41,665	0.9565	1.00	40,516.5	259,655.5	5.96	
842	44,018	1.0105	1.00	42,841.5	302,497.0	6.94	
842.2	44,177	1.0142	0.20	8,819.5	311,316.5	7.15	100 yr
843	48,651	1.1169	0.80	37,131.2	348,447.7	8.00	Top of Berm

ORIFICE DRAWDOWN TIME FOR BATCH DETENTION

Average End Area Method $V_{1,2} = \left[\frac{A_1 + A_2}{2}\right] * d$

Contour Elevation (ft)	Contour Area (ft^2)	Incremental Volume (ft^3)	Total Volume (ft^3)	Orifice Discharge (cfs)	Incremental Drawdown Time (hr)	Total Drawdown Time (hr)
835	28,732	0	0			
834	23,980	26,356	26,356	1.10	6.6	6.6
833	11,004	17,492	43,848	1.02	4.8	11.4
832	212	5,608	49,456	0.93	1.7	13.1

ORIFICE DIAMETER	4.00	in
ORIFICE FL ELEV	827.45	
ORIFICE CENTROID ELEV	**827.62**	
ORIFICE AREA (Ao)	**0.087**	sf
ORIFICE COEFFICIENT	**0.6**	

ORIFICE EQUATION $Q = CA_o\sqrt{2gH}$

CALCULATE 24 HR DRAWDOWN ELEVATION FOR WATER QUALITY POND (USE IN DETENTION MODEL)

Total Drawdown Time	13.1	hours
Total Hold + Drawdown Time (Max. 48 Hours)	25.1	hours
Orifice Discharge Rate (Average)	1.05	cfs

POND UNDERDRAIN SIZING CALCULATIONS

DRAIN LINE ID	WATER QUALITY VOLUME **WQV** (cf)	AVERAGE DRAWDOWN FLOWRATE FROM ORIFICE (VALVE) **Q** (cfs)	PIPE DIAMETER **D** (in)	MANNINGS **n**	PIPE SLOPE **S** (ft/ft)	FULL FLOW CAPACITY **Qcap**	**K**	FRICTION SLOPE S_F (ft/ft)
POND DRAIN 7.15	49,456	1.05	6	0.010	0.02	1.03	7.29	0.0207

DATE | NO. | REVISION

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

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KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
POND 7.15

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 41 OF 76

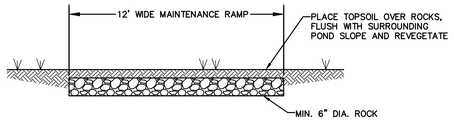
BATCH POND 7.15

Material Property	Requirement	Testing Standard
Minimum Liquid Limit	> 50	ASTM D 4318
Minimum Plasticity Index	> 30	ASTM D 4318
Minimum Percent Passing # 200 Sieve	> 60 %	ASTM D 422
Maximum Particle Size	< 1 inch	ASTM D 422
Maximum Laboratory Permeability	< 1 x10^{-7} cm/sec	ASTM D 5084

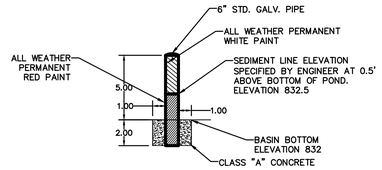
*REFER TO GEOTECHNICAL REPORT PREPARED BY MLA LABS, INC., DATED OCTOBER 26, 2015 FOR CLAY LINER RECOMMENDATIONS.

NOTE
1. THE CONSTRUCTED HEIGHT OF AN EARTHEN EMBANKMENT SHALL BE EQUAL TO THE DESIGN HEIGHT PLUS THE AMOUNT NECESSARY TO ENSURE THAT THE DESIGN HEIGHT WILL BE MAINTAINED ONCE ALL SETTLEMENT HAS TAKEN PLACE. THIS AMOUNT SHALL IN NO CASE BE LESS THAN 5% OF THE TOTAL FILL HEIGHT. ALL EARTHEN EMBANKMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH CITY OF SAN MARCOS STANDARD SPECIFICATIONS.
2. UPON COMPLETION OF THE PROPOSED STORM WATER 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 IN WRITING THAT THE PROPOSED STRUCTURAL CONTROL(S) WAS INSPECTED (INCLUDING DATE AND TIME OF THE INSPECTION) AND CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.

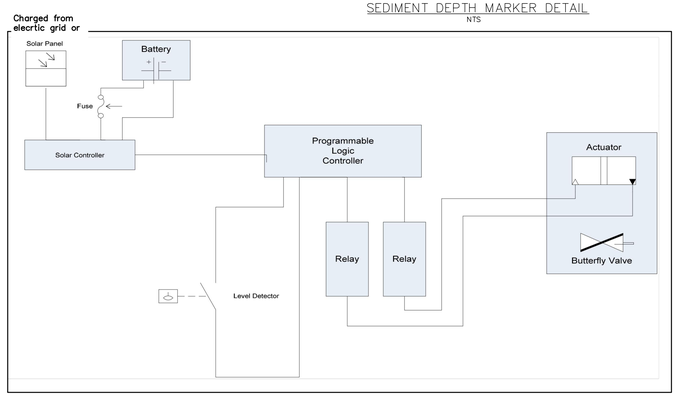
   ANY SUCH STRUCTURAL CONTROL(S) BUILT WITHIN THE CITY OF SAN MARCOS MUST MAINTAIN COMPLIANCE WITH THE CITY'S MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) AND APPLICABLE MS4 ORDINANCES. PRIOR TO RELEASE OF EASEMENT MUST BE SHOWN AROUND ALL STRUCTURAL CONTROLS INCLUDING A MAINTENANCE COVENANT WITHIN THE CITY LIMITS.
3. STABILIZATION OF POND OR OTHER DISTURBED SLOPES 3:1 OR STEEPER WITH DEGRADABLE SOIL RETENTION BLANKETS, OR EQUIVALENT BMP, IS REQUIRED. OR SOD.



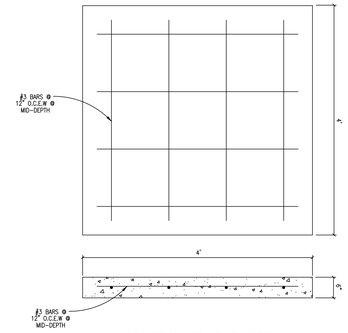
POND MAINTENANCE ACCESS SECTION
N.T.S.



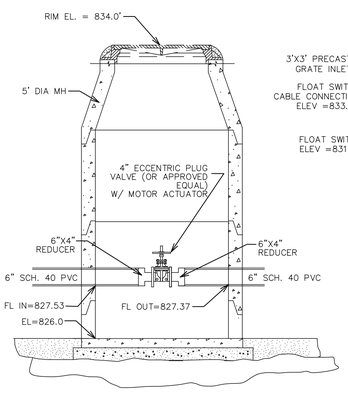
SEDIMENT DEPTH MARKER DETAIL
NTS



Batch Detention Pond Controller Information		
Component	**Description**	**Voltage**
Power System	Solar Charged 12 VDC Battery (Model MK Powered 8GU1) (Or approved equal) or charged from electric grid.	
Logic Controller	IDEC FL1C-H12RCE (Or approved equal)	12
Parts Enclosure	Southwest Photovoltaic Model BBG-1 (15.75" wide x 9.75" deep x 11.75" tall) (Or approved equal)	
Nature of Event Sensing	Anchor Scientific Float Switch(Or approved equal)	
Valve Type	Keystone 4" Butterfly Valve with over torque sensors and mechanical hand crank for physical override if necessary. Able to withstand 100 psi minimum. (Or approved equal)	
Actuator	EPI-6 12 VDC. Able to withstand 100 psi minimum. (Or approved equal)	12
Power Consumption (actuator, controller, relay, PLC)	242.58 W, 46.5 W-hours	

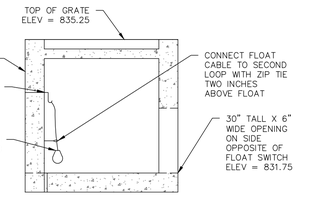


CONTROLLER PAD DETAIL
NTS

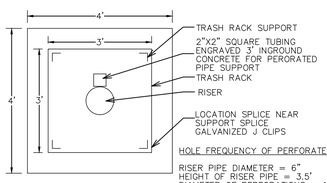


STORM SEWER MANHOLE DETAIL
NTS

NOTE:
CONTROL VALVE TO BE MOTOR ACTUATED VALVE. VALVE SHALL BE WIRED TO A CONTROLLER THAT OPENS VALVE 12 HOURS AFTER RAINFALL EVENT AND CLOSES VALVE ONCE POND HAS DRAINED DRY. CONTROLLER SHALL INCLUDE PROVISIONS FOR A MANUAL OVERRIDE SWITCH.

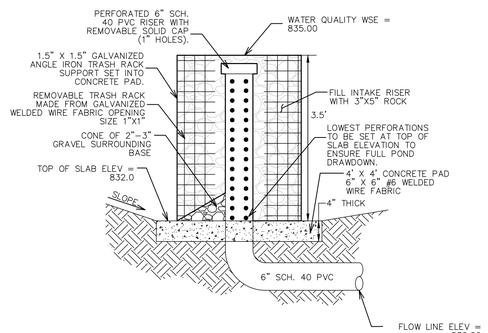


FLOAT SWITCH
N.T.S.



HOLE FREQUENCY OF PERFORATED RISER PIPE

RISER PIPE DIAMETER = 6"
HEIGHT OF RISER PIPE = 3.5'
DIAMETER OF PERFORATIONS = 1"
NUMBER OF PERFORATIONS PER ROW = 4"
VERTICAL SPACING BETWEEN ROWS (ON CENTER) = 4"



INTAKE RISER DETAIL
NTS

NOTE:
INTAKE RISER TO BE USED AS TEMPORARY SEDIMENT BASIN DEWATERING OUTLET DURING INTERIM CONSTRUCTION ACTIVITIES.

LOGIC CONTROLLER CYCLE OVERVIEW:
1. CASE 1: A SINGLE RAIN EVENT FILLS THE BATCH DETENTION BASIN. THE BASIN HOLDS THE DIVERTED STORM WATER FOR THE DETENTION TIME (12 HOURS) AND THE RELEASES THE WATER. ONCE THE BATCH DETENTION BASIN IS EMPTY, A DELAY OF 2 HOURS IS STARTED TO ALLOW THE BASIN TO COMPLETELY DRAIN, AND THEN A CLOSE SIGNAL IS SENT TO THE ACTUATOR TO CLOSE THE VALVE.
2. CASE 2: A SINGLE RAIN EVENT OCCURS, BUT DOES NOT COMPLETELY FILL THE BATCH DETENTION BASIN. THE BASIN HOLDS THE WATER FOR THE DETENTION PERIOD (12 HOURS), AND THEN RELEASES IT. ONCE THE BATCH DETENTION BASIN IS EMPTY, A DELAY OF 2 HOURS IS STARTED TO ALLOW THE BASIN TO COMPLETELY DRAIN, AND THEN A CLOSE SIGNAL IS SENT TO THE ACTUATOR TO CLOSE THE VALVE.
3. CASE 3: A SINGLE RAIN EVENT FILLS THE BATCH DETENTION BASIN UNDER THE TRIP POINT OF THE LEVEL SENSOR. THE LEVEL SENSOR DOES NOT TRIP. THE CAPTURED WATER IS HELD UNTIL IT INFILTRATES / EVAPORATES OR IS JOINED BY STORM WATER FROM A SUBSEQUENT STORM.
4. CASE 4: BEGINS THE SAME AS CASE 1. DURING THE DRAWDOWN PERIOD, ONE OR MORE ADDITIONAL RAIN EVENTS OCCUR CAUSING ADDITIONAL WATER TO ENTER THE BATCH DETENTION BASIN. THE VALVE REMAINS OPEN AND THE ADDITIONAL WATER VOLUME IS DRAINED. ONCE THE BATCH DETENTION BASIN IS EMPTY, A DELAY OF 2 HOURS IS STARTED TO ALLOW THE BASIN TO COMPLETELY DRAIN, AND THEN A CLOSE SIGNAL IS SENT TO THE ACTUATOR TO CLOSE THE VALVE.
5. CASE 5: BEGINS THE SAME AS CASE 2. DURING THE DRAWDOWN PERIOD, ONE OR MORE ADDITIONAL RAIN EVENTS CAN OCCUR CAUSING ADDITIONAL WATER TO ENTER THE BASIN. THE VALVE REMAINS OPEN AND THE ADDITIONAL WATER VOLUME IS DRAINED. ONCE THE BATCH DETENTION BASIN IS EMPTY, A DELAY OF 2 HOURS IS STARTED TO ALLOW THE BASIN TO COMPLETELY DRAIN, AND THEN A CLOSE SIGNAL IS SENT TO THE ACTUATOR TO CLOSE THE VALVE.
6. CASE 6: INTERMITTENT NUISANCE WATER LESS THAN THE FLOAT ON ELEVATION. TO ALLEVIATE SMALL FLOWS DUE TO IRRIGATION OUTSIDE OF STORM EVENTS, THE CONTROLLER WILL OPEN THE VALVE ONCE A WEEK FOR TWO HOURS TO DRAIN ANY NUISANCE WATER.
7. CONTROL PANEL SHALL HAVE A TWO KNOB CONTROL PANEL. KNOB 1 TOGGLES FROM OPEN/CLOSED/AUTO AND KNOB 2 TOGGLES FROM WATER QUALITY MODE TO TEST MODE. TEST MODE SHOULD HAVE AN OPEN CLOSE CYCLE OF ONE MINUTE AND THE WATER QUALITY MODE SHOULD FOLLOW TCEQ STANDARDS. THE ONE MINUTE TIMER IN TEST MODE SHALL REQUIRE LIFTING OF THE FLOAT SWITCH TO INITIATE.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Paso Robles Phase 6E
Date Prepared: 6/26/2023

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Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: — Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resu
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Hays	
Total project area included in plan * =	33.70	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	10.62	acres
Total post-development impervious cover fraction * =	0.32	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	10128	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	0	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	7.15		
Total drainage basin/outfall area =	12.89	acres	
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres	
Post-development impervious area within drainage basin/outfall area =	5.86	acres	5.08 ac of IC treated to 85% TSS Removal & 0.55 ac treated to 70% removal
Post-development impervious fraction within drainage basin/outfall area =	0.45		
$L_{M\ THIS\ BASIN}$ =	5131	lbs.	ADJUSTED FOR 85% TSS REMOVAL
	377		ADJUSTED FOR 70% TSS REMOVAL
3. Indicate the proposed BMP Code for this basin.	5508		TOTAL TSS REMOVAL
Proposed BMP =	Batch Detention		
Removal efficiency =	91	percent	

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	12.89	acres
A_I =	5.86	acres
A_P =	7.03	acres
L_R =	6203	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	5923	lbs.
F =	0.95	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. — Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	2.60	inches
Post Development Runoff Coefficient =	0.33	
On-site Water Quality Volume =	40589	cubic feet

Calculations from RG-348 — Pages 3-36 to 3-37

Off-site area draining to BMP =		acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	8118	
Total Capture Volume (required water quality volume(s) x 1.20) =	48706	cubic feet

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
POND 7.15 DETAILS 1 OF 2

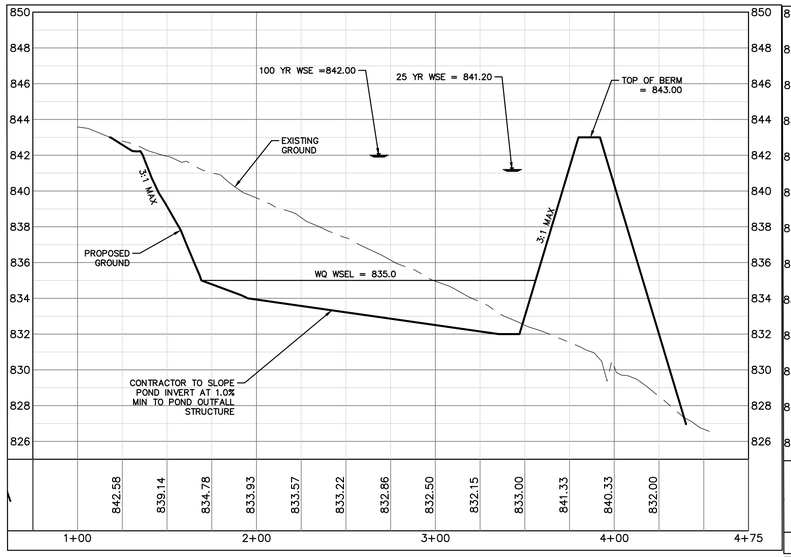
CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 42 OF 76

Date: Aug 21, 2023, 9:32am User ID: jbennett
File: H:\Projects\50848\48\64\301 Construction Documents\Civil\P050848-64.dwg

2023-XXXX

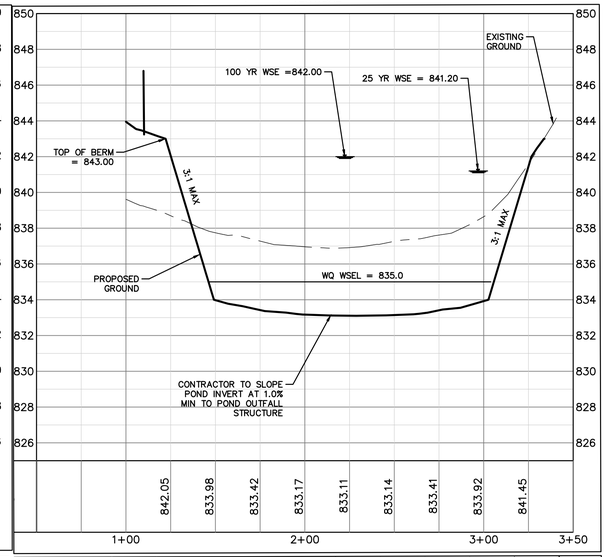
CROSS SECTION A–A

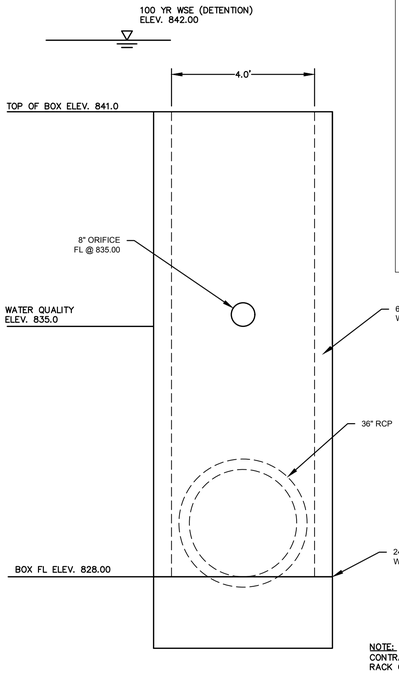
1" = 40' HORIZONTAL
1" = 4' VERTICAL

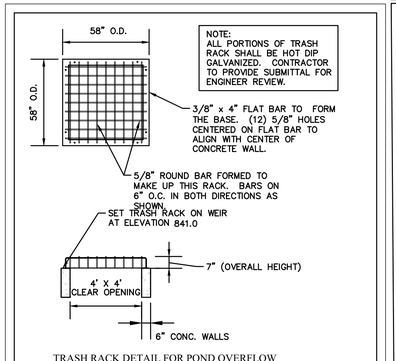


CROSS SECTION B–B

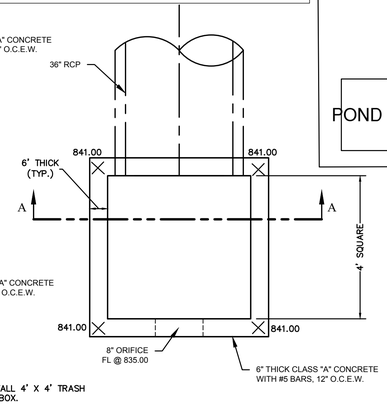
1" = 40' HORIZONTAL
1" = 4' VERTICAL



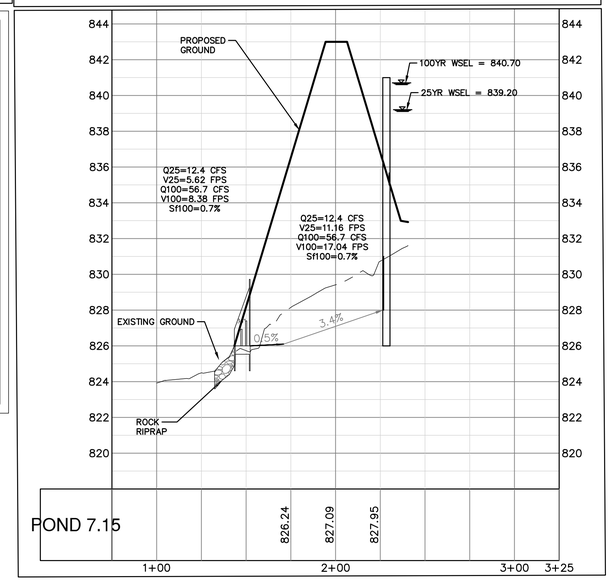




TRASH RACK DETAIL FOR POND OVERFLOW STRUCTURE - POND 5-1
1" = 4'



POND 7.15 OUTFALL STRUCTURE
1"= 2'



Detention Pond 7.15: Spillway Rating Curve

Stage	8" Orifice FL 835.00			Weir 1 at Elev. 841.0			Total Weir Discharge	36" Outlet Pipe FL 828.00			Total Discharge	Comment
	Orifice Coeff.	Orifice Area	Discharge Q	Weir Coeff.	Weir Length	Discharge Q	Q	Orifice Coeff.	Orifice Area	Maximum Discharge Q	Q	
	C	A	(cfs)	C	L (ft)	(cfs)	(cfs)	C	A (sf)	(cfs)	(cfs)	
(ft. msl)		(sf)										
835.0	0.6	0.3	**0.0**	3.00	16.0	**0.0**	**0.0**	0.6	7.1	**159.6**	**0.0**	FL of Orifice #1
835.1	0.6	0.3	**0.0**	3.00	16.0	**0.0**	**0.0**	0.6	7.1	**161.1**	**0.0**	
835.2	0.6	0.3	**0.0**	3.00	16.0	**0.0**	**0.0**	0.6	7.1	**162.5**	**0.0**	
835.3	0.6	0.3	**0.0**	3.00	16.0	**0.0**	**0.0**	0.6	7.1	**163.9**	**0.0**	Centroid of Orifice #1
835.4	0.6	0.3	**0.9**	3.00	16.0	**0.0**	**0.9**	0.6	7.1	**165.3**	**0.9**	
835.5	0.6	0.3	**1.4**	3.00	16.0	**0.0**	**1.4**	0.6	7.1	**166.7**	**1.4**	
835.6	0.6	0.3	**1.7**	3.00	16.0	**0.0**	**1.7**	0.6	7.1	**168.1**	**1.7**	
835.7	0.6	0.3	**2.0**	3.00	16.0	**0.0**	**2.0**	0.6	7.1	**169.5**	**2.0**	
835.8	0.6	0.3	**2.3**	3.00	16.0	**0.0**	**2.3**	0.6	7.1	**170.9**	**2.3**	
835.9	0.6	0.3	**2.5**	3.00	16.0	**0.0**	**2.5**	0.6	7.1	**172.2**	**2.5**	
836.0	0.6	0.3	**2.8**	3.00	16.0	**0.0**	**2.8**	0.6	7.1	**173.5**	**2.8**	
836.1	0.6	0.3	**2.9**	3.00	16.0	**0.0**	**2.9**	0.6	7.1	**174.9**	**2.9**	
836.2	0.6	0.3	**3.1**	3.00	16.0	**0.0**	**3.1**	0.6	7.1	**176.2**	**3.1**	
836.3	0.6	0.3	**3.3**	3.00	16.0	**0.0**	**3.3**	0.6	7.1	**177.5**	**3.3**	
836.4	0.6	0.3	**3.5**	3.00	16.0	**0.0**	**3.5**	0.6	7.1	**178.8**	**3.5**	
836.5	0.6	0.3	**3.6**	3.00	16.0	**0.0**	**3.6**	0.6	7.1	**180.1**	**3.6**	
836.6	0.6	0.3	**3.8**	3.00	16.0	**0.0**	**3.8**	0.6	7.1	**181.4**	**3.8**	
836.7	0.6	0.3	**3.9**	3.00	16.0	**0.0**	**3.9**	0.6	7.1	**182.7**	**3.9**	
836.8	0.6	0.3	**4.1**	3.00	16.0	**0.0**	**4.1**	0.6	7.1	**183.9**	**4.1**	
836.9	0.6	0.3	**4.2**	3.00	16.0	**0.0**	**4.2**	0.6	7.1	**185.2**	**4.2**	
837.0	0.6	0.3	**4.3**	3.00	16.0	**0.0**	**4.3**	0.6	7.1	**186.4**	**4.3**	
837.1	0.6	0.3	**4.5**	3.00	16.0	**0.0**	**4.5**	0.6	7.1	**187.7**	**4.5**	
837.2	0.6	0.3	**4.6**	3.00	16.0	**0.0**	**4.6**	0.6	7.1	**188.9**	**4.6**	
837.3	0.6	0.3	**4.7**	3.00	16.0	**0.0**	**4.7**	0.6	7.1	**190.1**	**4.7**	
837.4	0.6	0.3	**4.8**	3.00	16.0	**0.0**	**4.8**	0.6	7.1	**191.3**	**4.8**	
837.5	0.6	0.3	**5.0**	3.00	16.0	**0.0**	**5.0**	0.6	7.1	**192.5**	**5.0**	
837.6	0.6	0.3	**5.1**	3.00	16.0	**0.0**	**5.1**	0.6	7.1	**193.7**	**5.1**	
837.7	0.6	0.3	**5.2**	3.00	16.0	**0.0**	**5.2**	0.6	7.1	**194.9**	**5.2**	
837.8	0.6	0.3	**5.3**	3.00	16.0	**0.0**	**5.3**	0.6	7.1	**196.1**	**5.3**	
837.9	0.6	0.3	**5.4**	3.00	16.0	**0.0**	**5.4**	0.6	7.1	**197.3**	**5.4**	
838.0	0.6	0.3	**5.5**	3.00	16.0	**0.0**	**5.5**	0.6	7.1	**198.5**	**5.5**	
838.1	0.6	0.3	**5.6**	3.00	16.0	**0.0**	**5.6**	0.6	7.1	**199.6**	**5.6**	
838.2	0.6	0.3	**5.7**	3.00	16.0	**0.0**	**5.7**	0.6	7.1	**200.8**	**5.7**	
838.3	0.6	0.3	**5.8**	3.00	16.0	**0.0**	**5.8**	0.6	7.1	**201.9**	**5.8**	
838.4	0.6	0.3	**5.9**	3.00	16.0	**0.0**	**5.9**	0.6	7.1	**203.1**	**5.9**	
838.5	0.6	0.3	**6.0**	3.00	16.0	**0.0**	**6.0**	0.6	7.1	**204.2**	**6.0**	
838.6	0.6	0.3	**6.1**	3.00	16.0	**0.0**	**6.1**	0.6	7.1	**205.3**	**6.1**	
838.7	0.6	0.3	**6.2**	3.00	16.0	**0.0**	**6.2**	0.6	7.1	**206.5**	**6.2**	
838.8	0.6	0.3	**6.3**	3.00	16.0	**0.0**	**6.3**	0.6	7.1	**207.6**	**6.3**	
838.9	0.6	0.3	**6.4**	3.00	16.0	**0.0**	**6.4**	0.6	7.1	**208.7**	**6.4**	
839.0	0.6	0.3	**6.4**	3.00	16.0	**0.0**	**6.4**	0.6	7.1	**209.8**	**6.4**	
839.1	0.6	0.3	**6.5**	3.00	16.0	**0.0**	**6.5**	0.6	7.1	**210.9**	**6.5**	
839.2	0.6	0.3	**6.6**	3.00	16.0	**0.0**	**6.6**	0.6	7.1	**212.0**	**6.6**	
839.3	0.6	0.3	**6.7**	3.00	16.0	**0.0**	**6.7**	0.6	7.1	**213.1**	**6.7**	
839.4	0.6	0.3	**6.8**	3.00	16.0	**0.0**	**6.8**	0.6	7.1	**214.2**	**6.8**	
839.5	0.6	0.3	**6.9**	3.00	16.0	**0.0**	**6.9**	0.6	7.1	**215.3**	**6.9**	
839.6	0.6	0.3	**6.9**	3.00	16.0	**0.0**	**6.9**	0.6	7.1	**216.3**	**6.9**	
839.7	0.6	0.3	**7.0**	3.00	16.0	**0.0**	**7.0**	0.6	7.1	**217.4**	**7.0**	
839.8	0.6	0.3	**7.1**	3.00	16.0	**0.0**	**7.1**	0.6	7.1	**218.5**	**7.1**	
839.9	0.6	0.3	**7.2**	3.00	16.0	**0.0**	**7.2**	0.6	7.1	**219.5**	**7.2**	
840.0	0.6	0.3	**7.3**	3.00	16.0	**0.0**	**7.3**	0.6	7.1	**220.6**	**7.3**	
840.1	0.6	0.3	**7.3**	3.00	16.0	**0.0**	**7.3**	0.6	7.1	**221.6**	**7.3**	
840.2	0.6	0.3	**7.4**	3.00	16.0	**0.0**	**7.4**	0.6	7.1	**222.7**	**7.4**	
840.3	0.6	0.3	**7.5**	3.00	16.0	**0.0**	**7.5**	0.6	7.1	**223.7**	**7.5**	
840.4	0.6	0.3	**7.6**	3.00	16.0	**0.0**	**7.6**	0.6	7.1	**224.7**	**7.6**	
840.5	0.6	0.3	**7.6**	3.00	16.0	**0.0**	**7.6**	0.6	7.1	**225.8**	**7.6**	
840.6	0.6	0.3	**7.7**	3.00	16.0	**0.0**	**7.7**	0.6	7.1	**226.8**	**7.7**	
840.7	0.6	0.3	**7.8**	3.00	16.0	**0.0**	**7.8**	0.6	7.1	**227.8**	**7.8**	
840.8	0.6	0.3	**7.9**	3.00	16.0	**0.0**	**7.9**	0.6	7.1	**228.8**	**7.9**	
840.9	0.6	0.3	**7.9**	3.00	16.0	**0.0**	**7.9**	0.6	7.1	**229.8**	**7.9**	
841.0	0.6	0.3	**8.0**	3.00	16.0	**0.0**	**8.0**	0.6	7.1	**230.8**	**8.0**	Weir 1 Elevation
841.1	0.6	0.3	**8.1**	3.00	16.0	**1.5**	**9.6**	0.6	7.1	**231.8**	**9.6**	
841.2	0.6	0.3	**8.1**	3.00	16.0	**4.3**	**12.4**	0.6	7.1	**232.8**	**12.4**	25 YR WSEL
841.3	0.6	0.3	**8.2**	3.00	16.0	**7.9**	**16.1**	0.6	7.1	**233.8**	**16.1**	
841.4	0.6	0.3	**8.3**	3.00	16.0	**12.1**	**20.4**	0.6	7.1	**234.8**	**20.4**	
841.5	0.6	0.3	**8.3**	3.00	16.0	**17.0**	**25.3**	0.6	7.1	**235.8**	**25.3**	
841.6	0.6	0.3	**8.4**	3.00	16.0	**22.3**	**30.7**	0.6	7.1	**236.8**	**30.7**	
841.7	0.6	0.3	**8.5**	3.00	16.0	**28.1**	**36.6**	0.6	7.1	**237.8**	**36.6**	
841.8	0.6	0.3	**8.6**	3.00	16.0	**34.3**	**42.9**	0.6	7.1	**238.7**	**42.9**	
841.9	0.6	0.3	**8.6**	3.00	16.0	**41.0**	**49.6**	0.6	7.1	**239.7**	**49.6**	
842.0	0.6	0.3	**8.7**	3.00	16.0	**48.0**	**56.7**	0.6	7.1	**240.7**	**56.7**	100 YR WSEL
842.1	0.6	0.3	**8.7**	3.00	16.0	**55.4**	**64.1**	0.6	7.1	**241.6**	**64.1**	
842.2	0.6	0.3	**8.8**	3.00	16.0	**63.1**	**71.9**	0.6	7.1	**242.6**	**71.9**	
842.3	0.6	0.3	**8.9**	3.00	16.0	**71.1**	**80.0**	0.6	7.1	**243.5**	**80.0**	
842.4	0.6	0.3	**8.9**	3.00	16.0	**79.5**	**88.5**	0.6	7.1	**244.5**	**88.5**	
842.5	0.6	0.3	**9.0**	3.00	16.0	**88.2**	**97.2**	0.6	7.1	**245.4**	**97.2**	
842.6	0.6	0.3	**9.1**	3.00	16.0	**97.1**	**106.2**	0.6	7.1	**246.4**	**106.2**	
842.7	0.6	0.3	**9.1**	3.00	16.0	**106.4**	**115.5**	0.6	7.1	**247.3**	**115.5**	
842.8	0.6	0.3	**9.2**	3.00	16.0	**115.9**	**125.1**	0.6	7.1	**248.2**	**125.1**	
842.9	0.6	0.3	**9.2**	3.00	16.0	**125.7**	**135.0**	0.6	7.1	**249.2**	**135.0**	
843.0	0.6	0.3	**9.3**	3.00	16.0	**135.8**	**145.1**	0.6	7.1	**250.1**	**145.1**	Top of Berm

NO.	REVISION	DATE

STATE OF TEXAS
STEVEN S. CRAUFORD
92677
LICENSED PROFESSIONAL ENGINEER
8/21/23

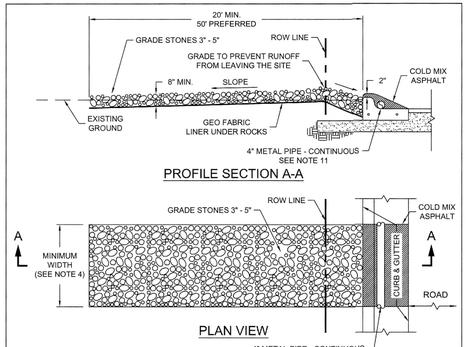
PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
POND 7.15 DETAILS 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE August 21, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 43 OF 76

Date: Aug 21, 2023, 9:32am User ID: Jbennett
File: H:\Projects\5084\64\64\301 Construction Documents\Civil\P050848-64.dwg

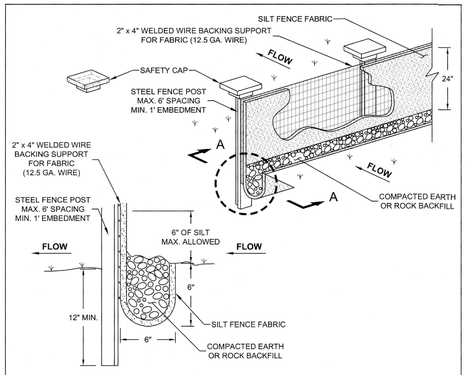
2023-XXXX



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.

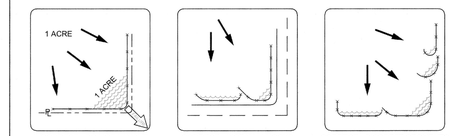
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



NOTES:

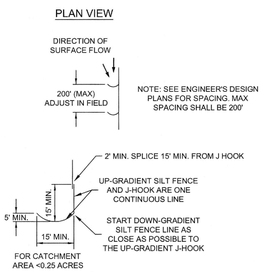
1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS SHALL MATCH THE TOP OF THE FENCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1'.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE 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 1/1/2023	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

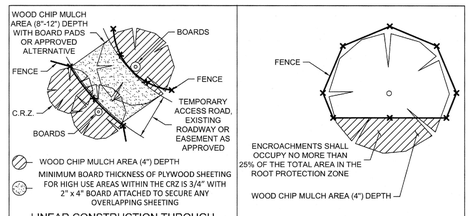


SILT FENCE TURNBACK DETAIL

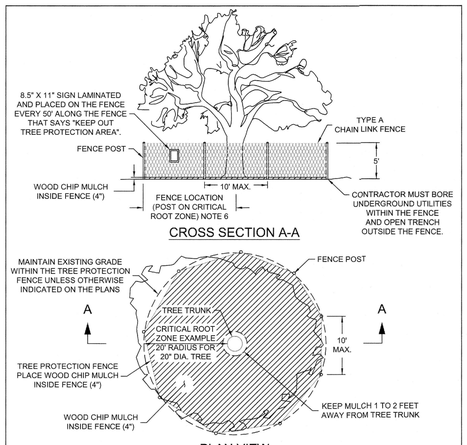
SILT FENCE PLACEMENT FOR PERIMETER CONTROL



The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	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



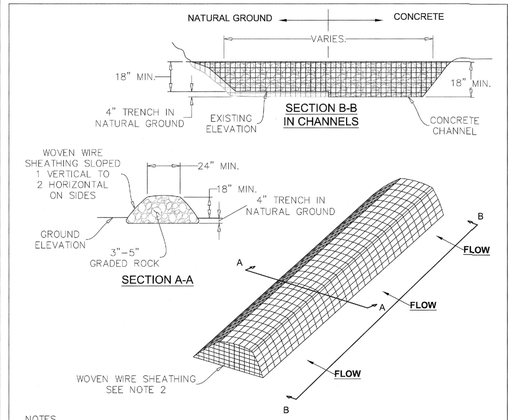
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	TREE PROTECTION FENCE LOCATION	
RECORD COPY SIGNED BY	3/17/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5. SEE TREE PRESERVATION PLAN FOR ANY MODIFICATIONS WITHIN THE TREE PROTECTION AREA.
6. ROOT PROTECTION ZONE EQUALS TO CRITICAL ROOT ZONE AND IS DETERMINED BY MEASURING THE TREE'S DIAMETER AT 54 INCHES FROM THE NATURAL GROUND LEVEL. FOR EVERY INCH IN DIAMETER THERE IS 1 FOOT RADIUS TREE PROTECTION.

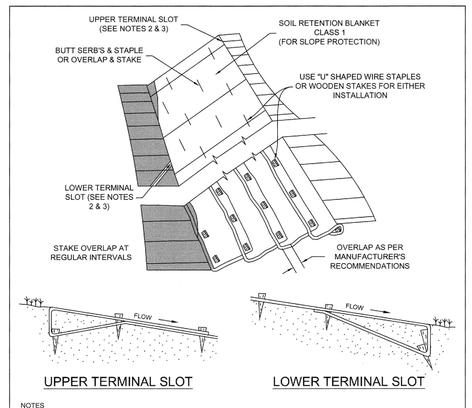
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	TREE PROTECTION FENCE TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY	3/17/2017	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



NOTES

1. USE ONLY OPEN GRADED ROCK 3"-5" IN DIAMETER.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1" OPENINGS AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT CONSTRUCTION, TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO 6", THE SILT WILL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

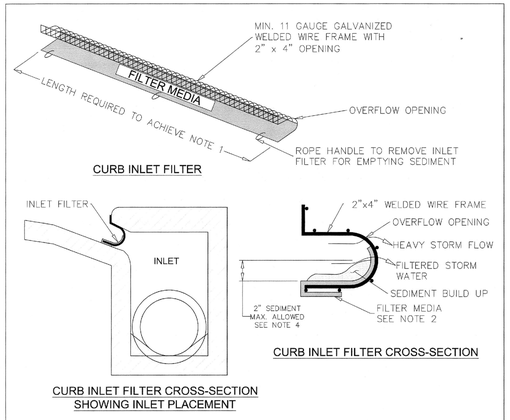
The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	ROCK BERM DETAIL	
RECORDED COPY SIGNED BY	8/4/2014	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	639S-1-SM
LAURIE MOYER, P.E.	ADOPTED		N.T.S. STANDARD DETAIL



NOTES

1. INSTALL SOIL RETENTION BLANKETS (SERB'S) BEGINNING AT THE DOWNSTREAM END AND PROCEED UPSTREAM.
2. THE LOCATION, SPACING AND CONFIGURATION OF UPPER AND LOWER TERMINAL SLOTS, CHECK SLOTS, ETC. MAY VARY FOR EACH CLASS AND TYPE OF SERB ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. FIRMLY TAMP TOPSOIL BACKFILL INTO ALL TERMINAL SLOTS.
3. SERB EDGES ALONG THE TOP SLOPE OR TOE OF SLOPE SHALL BE ANCHORED AS PER MANUFACTURER'S RECOMMENDATIONS.
4. THE "U" SHAPED WIRE STAPLES ARE TO BE INSTALLED AT 90° TO THE SLOPE PLANE. IF WIRE STAPLES PROVE TO BE AN UNSATISFACTORY METHOD OF SECURING THE SERB IN AREAS OF ROCK, RAILROAD SPIKES OR 60 PENNY NAILS MAY BE SUBSTITUTED WITH APPROVAL OF THE ENGINEER.
5. WIRE STAPLES SHALL BE MADE FROM NOT LESS THAN 13" LENGTHS OF NO. 11 WIRE BENT TO FORM A "U" APPROXIMATELY 1" IN WIDTH.
6. WOOD STAKES SHALL BE A MINIMUM LENGTH OF 10". WOOD DIAGONAL STAKES MAY BE USED.
7. IMMEDIATELY AFTER THE SERB HAS BEEN SECURED TO THE GROUND, THE AREA COVERED SHALL BE SPRINKLED AND ROLLED WITH A LIGHT ROLLER OF SUFFICIENT WEIGHT TO PRESS THE BLANKET INTO THE SURFACE OF THE SOIL. THE ROLLER SHALL BE OF SUCH WEIGHT TO AVOID OVER-COMPACTION OF THE SEEDBED.
8. FOLLOW MANUFACTURERS SPECIFICATIONS FOR INSTALLMENT.
9. REFER TO COSM SPECIFICATION 605S FOR ADDITIONAL DETAILS.
10. SOD MAY BE USED IN LIEU OF SOIL RETENTION BLANKETS FOR SLOPE LESS THAN 4H:1V.

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2023	SOIL RETENTION BLANKET	
RECORD COPY SIGNED BY	1/1/2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 605S-1-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



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 1/1/2023	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

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX, 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #100288001

STEVEN B. CRAWFORD 92677 LICENSED PROFESSIONAL ENGINEER 5/22/23

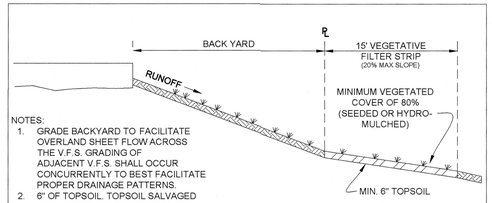
KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS

EROSION CONTROL DETAILS 1 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE July 7, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 58 OF 76

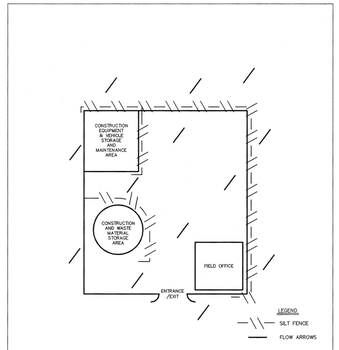
Date: Jul 07, 2023, 12:11pm User ID: chernandez
File: H:\Projects\5068\48\641_301 Construction Documents\Civil\0150848-64.dwg

2023-XXXX

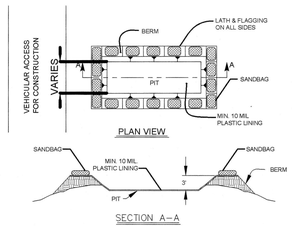


NOTES:
1. GRADE BACKYARD TO FACILITATE OVERLAND SHEET FLOW ACROSS THE V.F.S. GRADING OF ADJACENT V.F.S. SHALL OCCUR CONCURRENTLY TO BEST FACILITATE PROPER DRAINAGE PATTERNS.
2. 6" OF TOPSOIL. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED. SALVAGED AND IMPORTED TOPSOIL SHALL BE FREE OF TRASH, WEEDS (INCLUDING SEED), DELETERIOUS MATERIALS, ROCKS, AND DEBRIS.
3. INSTALLATION OF V.F.S. SHALL BE DONE PRIOR TO RECEIPT OF CERTIFICATE OF OCCUPANCY.

ENGINEERED
VEGETATIVE FILTER STRIP DETAIL
N.T.S.



TYP. CONSTRUCTION STAGING AREA



MATERIALS:

1) Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

INSPECTION AND MAINTENANCE GUIDELINES:

1) When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of.

2) Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.

3) Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

GENERAL NOTES:

1) Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.

2) Washout pit shall be located in an area easily accessible to construction traffic.

3) Washout pit shall not be located in areas subject to inundation from storm water runoff.

4) Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies.

5) Temporary concrete washout facility should be constructed with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.

CONCRETE TRUCK WASHOUT PIT

NO. | REVISION | DATE

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

KISSING TREE - PHASE 6E
CITY OF SAN MARCOS, TEXAS
EROSION CONTROL DETAILS 2 OF 2

CITY JOB No. XXXXXX
JOB NO. 50848-64
DATE July 7, 2023
DESIGNER
CHECKED SC DRAWN
SHEET 59 OF 76

2023-XXXX