

New water quality management measures, CAD details, and other resources can be found on the [HLWO Technical Manual and Construction Details webpage](#)



HIGHLAND LAKES WATERSHED ORDINANCE APPLICATION PACKET – DEVELOPMENT PERMIT

The LCRA Highland Lakes Watershed Ordinance requires permits for the following activities:

- Development activities including construction of subdivision infrastructure, single family, multi-family, and commercial buildings, parking areas, roadways, clearing land or filling, etc. that will add more than 10,000 square feet of impervious cover or disturb more than 1 acre of land.
- Mine or Quarry activities that create more than 10,000 square feet of impervious cover or disturb more than five (5) acres of land or that are located within a Buffer zone of a creek or river.
- Utility line construction and maintenance.
- Dredge and Fill Activities that dredge more than 500 cubic yards or disturb more than 500 linear feet of shoreline.

The Ordinance requires Written Notification and the use of Erosion and Sediment Controls for any Development activity even if a permit is not required. Refer to the “NOTIFICATION OF NO PERMIT REQUIRED” form in page 10 of this packet.

Development activities that are subject to permitting requirements shall comply with the following performance standards:

Performance Standards	Ordinance Section	Minimum Requirements
Pre-development Planning	Section 5.1 (a)	Meeting with LCRA staff to review project
Water Quality Management	Section 5.1 (b)	Plan showing drainage layout and BMP design information
Buffer Zones	Section 5.1 (c)	Plan showing buffer zones for creeks, and buffer zone protection measures
Construction- Phase Erosion and Sediment Control	Section 5.1 (d)	Construction-phase erosion control plan with details and specifications
Water Quality Education	Section 5.1 (e)	Contact LCRA to initiate education program

The landowner or land user must submit a permit application to LCRA for review and approval before beginning work. If the Development activity involves subdivision of land, LCRA will also review preliminary plans and final plats for compliance with Ordinance requirements.

Submit applications and/or notices to:

**LCRA – Mail Stop L106
P.O. Box 220
Austin, TX 78767
Attn: Watershed Engineering & Planning**

For questions regarding the **permit submittal process**, contact 800-776-5272, ext. 2324. For **technical questions** regarding the ordinance, construction requirements, etc., contact 800-776-5272, ext. 2091 or ext. 4080.

Before a permit can be issued, the applicant must post a notice at the project site and mail a notice to landowners within 500 feet of the property. The notification requirements are the responsibility of the applicant.

In addition, a Letter of Credit in the amount equal to the cost for installation of erosion and sediment controls and site stabilization must be provided after LCRA approves the cost estimate. A template for the letter of credit is included in this packet. A Letter of Credit with an expiration date of less than three years will not be accepted. A cashier’s or corporate check may be provided in lieu of a letter of credit.

Issuance of a Development Permit does not relieve the applicant of applying for and obtaining permits from other agencies that may also be required (i.e., city, county, state or federal agencies). It is the responsibility of the applicant to obtain all applicable permits.

The following is a packet of information to assist in submitting a Development Permit application. Contact LCRA for appropriate alternate forms and checklists for a Master Plan, Utility General Permit, Quarry/Mine Permit/Certification, Dredge and Fill Permit, or BMP Maintenance Permit.

Permit Application Form

Application # _____
(to be completed by LCRA)

LCRA HIGHLAND LAKES WATERSHED ORDINANCE DEVELOPMENT PERMIT APPLICATION

APPLICANT NAME: Thomas Playfair FIRM: Asphalt Inc., LLC
(PERSON OR STREET ADDRESS: 11675 Jollyville Rd., Suite 150
ENTITY CITY/STATE/ZIP: Austin, Tx 78759
SEEKING PHONE: 512-428-5778 FAX: 512-532-6241 EMAIL: thomas@lspaving.com
PERMIT)

PROPERTY NAME: Jack Wheeler FIRM: Burnet Ranch Investments, LLC
OWNER STREET ADDRESS: 1107 Ranch Road 620
CITY/STATE/ZIP: Lakeway, Tx 78734 FAX: 830-249-0221 EMAIL: josh@lspaving.com

AGENT/ NAME: Curt G. Campbell FIRM: Westward Environmental, Inc.
ENGINEER STREET ADDRESS: 4 Shooting Club Rd.
CITY/STATE/ZIP: Boerne, TX 78006
PHONE: 830-249-8284 FAX: 830-249-0221 EMAIL: ccampbell@westwardenv.com

PROJECT NAME: Burnet Quarry

NUMBER OF ACRES IN PROJECT: 710.32 acres

ADDRESS/LOCATION OF PROPERTY: 3221 FM 3509, Burnet, TX 78611

COUNTY: Burnet LAKE: Highland Lake TAX PARCEL ID: 47495

BRIEF DESCRIPTION OF PROJECT: The property is located south of FM 3509 about 3.62 miles west of W. State HWY 29. The existing property is mostly ranch fields with a residence on the southeast corner of the property. Asphalt Inc. plans to set up a mining operation on this property.

CERTIFICATION

I (we), the undersigned, do hereby certify that to the best of our knowledge this application correct, complete and complies with the LCRA Highland Lakes Watershed Ordinance. By submitting an application, the applicant and/or owner is authorizing LCRA to enter the site to obtain information required for review of this permit application.

Thomas Playfair
Applicant

10/30/24
Date

Jack Wheeler
Property Owner

10/30/24
Date

[Signature]
Agent/Engineer

11/1/2024
Date

Fee Schedule

Development Permit

\$1,830 + \$366/acre (0-10 acres) + \$165/acre (10-100 acres) + \$146/acre (> 100 acres)

Alternative Standards – Development Permit Fee (fast track permit and fee)

\$1,830 + \$73/acre (0-100 acres) + \$18/acre (>100 acres)

Master Plan Review

\$3.50 per acre for projects seeking alternate standards

\$5.00 per acre for projects not seeking alternate standards approval

Utility General Permit

\$500 for project lengths ranging from 1 to 5,000 linear feet

\$1,000 for project lengths greater than 5,000 linear feet

Annual Maintenance Inspection Fee

\$400/year (one to five water quality basins + \$50 for each additional Best Management Practice [BMP]). First fee paid at project completion by developer at issuance of BMP Maintenance Permit. Subsequent fee paid by owner/maintenance association.

Quarry/Mine Certification or Permit

\$1,000 + \$100/acre (0-10 acres) + \$45/acre (10-100 acres) + \$10/acre (> 100 acres)

\$1,000 + (\$100/acre x 10 acres) + (\$45/acre x 90 acres) + (\$10/acre x 610.32 acres) = \$12,153.20

Annual Quarry/Mine Inspection Fee

\$500 + \$200 for each pit/mine and water quality basin.

Dredge and Fill Permit

\$500 for projects ranging from 500 to 1,000 cubic yards

\$1,000 for projects greater than 1,000 cubic yards

Reinspection Fee

\$100

Permit Amendment

\$100

Plan Revisions

\$50 per plan sheet (fee to be charged only for sheets with substantive changes; no charge for changes to cover sheet, key map or detail sheets to reflect revisions)

**APPLICATION FEES MUST BE SUBMITTED AT THE TIME
APPLICATION IS MADE
Administrative Completeness Checklist**

To initiate the permitting process for a Development Permit, the following items must be submitted to the LCRA Water Quality Protection Office, Watershed Engineering & Planning Team:

- X Completed application form, including signature(s)
- X Ownership information (warranty deed or tax record)
- X Permit fee Sent vis Fed-Ex
- X Location map illustrating project location (indicating county, roads, etc.)
- X Engineer's report containing calculations and a description of the best management practices (BMPs) to be implemented. This report must be sealed by a professional engineer.
- X Construction plans including a water quality management plan and an erosion and sediment control plan. Plans must be sealed and signed by a professional engineer.
- X Engineer's cost estimate for temporary erosion controls. This cost estimate also must include revegetation costs in addition to silt fence, rock berm, stabilized construction entrance, etc. costs.

Refer to the attached Development Permit Submittal Requirements for further details regarding the required submittals. Contact LCRA for appropriate alternate forms and checklists for a Master Plan, Utility General Permit, Quarry/Mine Permit/Certification or BMP Maintenance Permit.

This information also can be found in the LCRA Water Quality Management Technical Manual Appendices. Application submittal and permit processing guidance is detailed in Section I Chapter 1 of the Technical Manual for Development Projects and Section II Chapter 1 for Quarry/Mine projects.

Before a permit can be issued, the applicant must post a notice at the project site and mail a notice to landowners within 500 feet of the property. The notification requirements are the responsibility of the applicant.

In addition, a letter of credit in the amount equal to the cost for installation of erosion and sediment controls and site stabilization (restoring vegetation) must be provided after LCRA approves the cost estimate. A template for the letter of credit is included in this packet. A letter of credit with an expiration date of less than three years will not be accepted. A cashier's or corporate check may be provided in lieu of a letter of credit.

Development Permit Submittal Requirements

Provide two (2) copies of documents listed below (except the application form). Electronic copies of reports and documents may be required upon request.

1. Completed application form and fee.
2. List of property owners within 500 feet of the site. The names of the property owners shall be determined by the applicant based upon records from the appropriate County Tax Appraisal District.
3. Detailed location map, description and address of the property.
4. Engineering Report – the report shall discuss site characteristics, water quality management strategies and include the following information:
 - description of site and of proposed development.
 - location and type of soils. This information can be obtained from the County Soil Survey.
 - vegetative cover map including tree and ground cover.
 - engineer's seal, signature and statement certifying that the plan is complete and in compliance with this ordinance.
 - data and calculations for water quality BMPs and associated drainage facilities, including drainage area, impervious cover area, time of concentration, runoff coefficients and discharge for 1 year and 25 year storm events (used to size vegetative filter strip width and determine flow splitter elevation/by-pass at water quality basins), stable constructed channel documentation, volume calculations for all ponds, floodplain calculations for fully developed conditions or FEMA floodplain delineation when used to define a buffer zone.
 - description of the permanent BMPs to be implemented to achieve the performance standards for Water Quality Management.
5. Water Quality Management Plan – the plan shall include sheet(s) at an appropriate scale¹ and in sufficient detail to ensure that permanent BMPs and associated drainage facilities are constructed in accordance with the design intent. Required information on the plan includes the following, however additional information may be required:
 - existing topography.
 - proposed grading and drainage patterns including drainage area maps for any offsite contributing areas (may be larger scale as needed).
 - delineation of buffer zones and notes restricting activities within same.
 - site layout showing all existing and proposed improvements and structures including buildings, parking areas, utilities, driveways, sidewalks, trails, etc.
 - location and schematic of the Best Management Practices (BMPs).
 - details for drainage system and permanent BMPs.
 - permanent BMPs shall be drawn at a scale to allow readability by reviewers and contractors, and include all notes and details.
6. Erosion and Sedimentation Control (ESC) Plan – plan sheets(s) at appropriate scale¹ showing the following information:

- existing topography.
- proposed grading and drainage patterns.
- all existing and proposed improvements and structures, including buildings, parking areas, utilities, driveways, sidewalks, trails, etc.
- limits of construction line.
- location of all access roads, haul roads, equipment storage areas, spoil and topsoil stockpile areas.
- location and schematic of temporary and permanent ESC.
- detailed sequence of construction indicating items to be constructed in each construction stage and ESC modifications to be implemented as construction progresses.
- details and specifications for ESC, and locations of controls.
- location and specifications for all structural stabilization, including stabilization of cut and fill areas.
- restoration plans for all disturbed areas on the site that include seed, sod and mulch type and rate of application; application technique; watering and fertilization schedule; criteria for acceptance of site stabilization.

¹ Suggested minimum scale of 1"=50' for tracts under 100 acres, 1" = 100' for tracts 100 to 250 acres 1" = 200' for tracts 250 to 400 acres, and 1" = 400' for larger tracts. Suggested contour line interval of 2' intervals for projects up to 400 acres or 5' intervals for projects greater than 400 acres. Offsite areas can utilize USGS topographic maps at a scale of 1"= 2000' to delineate drainage area boundaries.

7. Slope maps, at the same scale as the water quality management plan, depicting slope categories of 0-5%, 5-20%, and over 20%. The slope categories shall be determined by measuring between contour lines. For 2 foot contours the average of 5 contour intervals may be used and for 5' contours the average of 4 will be accepted. Permit applications submitted under ALTERNATE PERFORMANCE STANDARDS FOR SINGLE FAMILY SUBDIVISIONS and COMMERCIAL DEVELOPMENT will not require slope maps.
8. A maintenance plan as described in Sections 1.5 and Chapter 5 of this manual if permanent BMPs are included in the application.
9. A cost estimate, sealed by a Professional Engineer, for temporary and permanent erosion controls. The costs shall include topsoil, seed, mulch and watering for site stabilization. Financial Security, in a form approved by the LCRA, will be required prior to issuance of the permit. See the attached letter of credit example.
10. For sites with shoreline frontage on any of the Highland Lakes, contact LCRA to determine whether the project will require compliance with Dredge and Fill Standards, or a permit for Marina, and Private Sewage Facility Licensing.
11. For sites within LCRA Onsite Sanitary Sewer Facility (OSSF) jurisdiction, contact LCRA to determine OSSF permitting requirements.

Letter of Credit Template

[Required format for Letters of Credit related to Lower Colorado River Authority issued Development Permits- remove this text from final document]

(Issuing Bank letterhead)

IRREVOCABLE STANDBY LETTER OF CREDIT NO. _____

Date: _____, 20__

Expiration Date: _____, 20__

Beneficiary:

Lower Colorado River Authority
P.O. Box 220
Austin, Texas 78767

Applicant:

[Developer Name and address]

Gentlemen:

We hereby issue our Irrevocable Standby Letter of Credit No. _____ in your favor up to the aggregate amount of US\$ xx,xxx.xx [dollar and cents words written xxxxxxxxxxxx and xx/100] U.S. Dollars available by draft(s) drawn on us at sight, marked "Drawn under Irrevocable Standby Letter of Credit No. _____ of _____ [Issuing Bank name]" accompanied by the following:

1. A certificate signed by an authorized officer or agent of the Lower Colorado River Authority (hereinafter "LCRA") indicating that:
 - a) Applicant has failed to construct and maintain all required erosion and sedimentation controls, including final stabilization as set forth in Permit # _____ and the LCRA Highland Lakes Watershed Ordinance (the "Ordinance"), as amended.
 - b) LCRA has notified Applicant of such failure and Applicant has not constructed or maintained said erosion and sedimentation controls within 30 days of such notice.
 - c) LCRA has not failed to perform with respect to any material obligation required of it under the Ordinance.
2. An opinion signed by an attorney for LCRA certifying that:
 - a) An event has occurred as described in subparagraph 1.a) above which entitles LCRA to draw on this Letter of Credit, and the event has not been cured and is continuing.

b) LCRA has not failed to perform with respect to any material obligation required of it under the Ordinance.

3. This original Letter of Credit and any amendments thereto (if any). In the event of a partial drawing, the original Letter of Credit will be endorsed and returned to you, unless the Letter of Credit has expired or the amount available is reduced to zero.

We hereby engage with you that documents drawn under and in compliance with the terms of this Irrevocable Standby Letter of Credit will be duly honored if presented for payment to [Issuing Bank name and address of Letter of Credit department] prior to _____ a.m./p.m. [deadline] Central Time on or before the expiration date of this Letter of Credit.

It is a condition of this Letter of Credit that it shall be automatically extended without amendment for an additional period of one year from the current expiration date and each future expiration date, for as long as the Final Stabilization required by the Permit supported by the Letter of Credit has not been completed, or until a BMP Maintenance Permit has been approved by LCRA, whichever is later.

This Letter of Credit is subject to the International Standby Practices 1998, International Chamber of Commerce Publication No. 590 ("ISP98"), in effect on the date this Letter of Credit is issued, and as to matters not addressed by ISP98 is subject to and governed by Texas State Law and applicable U.S. Federal Law.

_____ [Issuing Bank name]

Authorized Signature

Authorized Signer Name

Authorized Signer Telephone Number

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

GENERAL WARRANTY DEED

THE STATE OF TEXAS §
 § **KNOW ALL BY THESE PRESENTS:**
COUNTY OF BURNET §

HVPR4, LLC, a Texas limited liability company (“Grantor”), whose mailing address is 13240 Pond Springs Road, Austin, Texas 78729, for and in consideration of the sum of TEN AND NO/100 DOLLARS (\$10.00) cash and other good and valuable consideration to Grantor in hand paid by **BURNET RANCH INVESTMENTS, LLC, a Delaware limited liability company** (“Grantee”), whose mailing address is 1107 Ranch Road 620 South, Lakeway, Texas 78734, the receipt and sufficiency of which consideration is hereby acknowledged, has GRANTED, SOLD AND CONVEYED, and by these presents does GRANT, SELL AND CONVEY unto Grantee, the real property described on Exhibit A attached hereto, together with all improvements thereon (the “Property”).

This conveyance is made by Grantor and accepted by Grantee subject to the title matters and exceptions set forth on Exhibit B attached hereto and incorporated herein by this reference (collectively, the “Permitted Exceptions”).

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereto in anywise belonging unto Grantee, its successors and assigns, forever, subject to the Permitted Exceptions, and Grantor does hereby bind itself, and its successors, to warrant and forever defend all and singular the Property unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

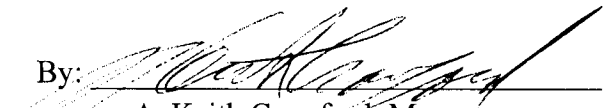
Current ad valorem taxes on the Property have been prorated between Grantor and Grantee. Grantee assumes the payment thereof for the year 2023 and subsequent years.

EXCEPT FOR GRANTOR’S GENERAL WARRANTY OF TITLE, GRANTOR IS CONVEYING THE PROPERTY TO GRANTEE “AS IS, WHERE IS”, AND WITH ALL FAULTS AND SPECIFICALLY AND EXPRESSLY WITHOUT ANY WARRANTIES, REPRESENTATIONS OR GUARANTEES, EITHER EXPRESS OR IMPLIED, OF ANY KIND, NATURE, OR TYPE WHATSOEVER FROM OR ON BEHALF OF GRANTOR.

EXECUTED AS OF AND EFFECTIVE the 18th day of December, 2023.

GRANTOR:

HVPR4, LLC,
a Texas limited liability company

By: 
A. Keith Crawford, Manager

ACKNOWLEDGEMENT

STATE OF TEXAS
COUNTY OF Burnet

§
§
§

Before me, a Notary Public, on the 18th day of December, 2023, personally appeared **A. Keith Crawford**, Manager of HVPR4, LLC, a Texas limited liability company, who acknowledged that he did sign the foregoing instrument on behalf of **HVPR4, LLC**, and acknowledged to me that he executed the same for the uses and purposes and consideration therein expressed.

Cathy M. Whitfield
Notary Public, State of Texas

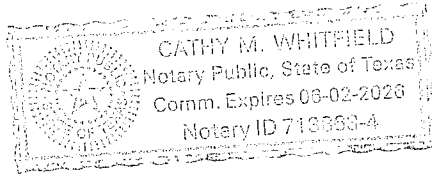


Exhibit A
Legal Description

FIELD NOTE DESCRIPTION FOR A 710.32 ACRE TRACT OF LAND, SITUATED IN BURNET COUNTY, TEXAS:

BEING A 710.32 ACRE TRACT OF LAND, CONSISTING OF 252.32 ACRES OUT OF THE HT & B. RR. COMPANY SURVEY NO 13, ABSTRACT NO. 449, 143.53 ACRES OUT OF THE CONRAD ROARER SURVEY NO 112, ABSTRACT NO. 738, 257.43 ACRES OUT OF THE AB & M SURVEY NO. 1, ABSTRACT NO. 39, 47.24 ACRES OUT OF THE AB & M SURVEY NO. 3, ABSTRACT NO. 40, AND 9.80 ACRES OUT OF THE FRANCISCO YBARBO, SR., SURVEY NO. 39, ABSTRACT NO. 1018, ALL SITUATED IN BURNET COUNTY, TEXAS, CONVEYED BY SPECIAL WARRANTY DEED WITH VENDOR'S LEIN TO HVPR4, LLC. AS RECORDED IN DOCUMENT NO. 202014118 OF THE OFFICIAL PUBLIC RECORDS OF BURNET COUNTY, TEXAS.

BEGINNING at a 1/2" iron rod, lying in the south right-of-way line of Farm to Market 3509 (FM 3509), a public road, common with the north line of said HVPR4, LLC tract, marking the northeast corner of a 101.33 acre tract of land, conveyed by Warranty Deed to Lera Carolyn Hall, as recorded in Document No. 202007616 of the Official Public Records of Burnet County, Texas, for the northwest corner of this tract;

THENCE, along the north line of this tract, common with the north line of said HVPR4, LLC tract, common with the south right-of-way line of said FM 3509, the following five (5) courses and distances:

- 1) North 75°03'18" East, a distance of 93.98 feet, to a 1/2" iron rod set, at the point-of-curvature of a curve to the left, for an angle corner of this tract;
- 2) Along said curve to the left, an arc length of 335.59 feet, said curve having a radius of 2,362.20 feet, and a chord which bears North 70°57'29" East, for a distance of 335.31 feet, to a 1/2" iron rod set, at the point-of-tangency of said curve to the left, for an angle corner of this tract;
- 3) North 66°53'15" East, a distance of 933.82 feet, to a 1/2" iron rod set, at the point-of-curvature of a curve to the left, for an angle corner of this tract;
- 4) Along said curve to the left, an arc length of 2,860.98 feet, said curve having a radius of 11,531.65 feet, and a chord which bears North 59°46'14" East, for a distance of 2,853.65 feet, to a 1/2" iron rod set, at the point-of-tangency of said curve to the left, for an angle corner of this tract, and;
- 5) North 52°39'44" East, a distance of 330.22 feet, to a 2" pipe post, marking an angle corner of said HVPR4, LLC tract, for the northeast corner of this tract;

THENCE, South 13°04'57" East, leaving the south right-of-way line of said FM 3509, along the east line of this tract, through and across said HVPR4, LLC tract, a distance of 6,831.95 feet, to a 1/2" iron rod set, for the southeast corner of this tract;

THENCE, South 80°24'59" West, along the south line of this tract, through and across said HVPR4, LLC tract, a distance of 6,082.56 feet, to a 2" pipe post, lying in the east line of a 100.00 acre tract of land conveyed by Warranty Deed to Robert J. and Nancy L. Manning, as recorded in Document No. 201405109 of the Official Public Records of Burnet County, Texas, for the southwest corner of this tract;

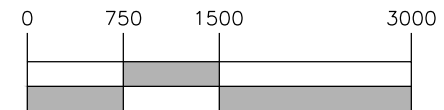
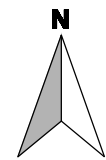
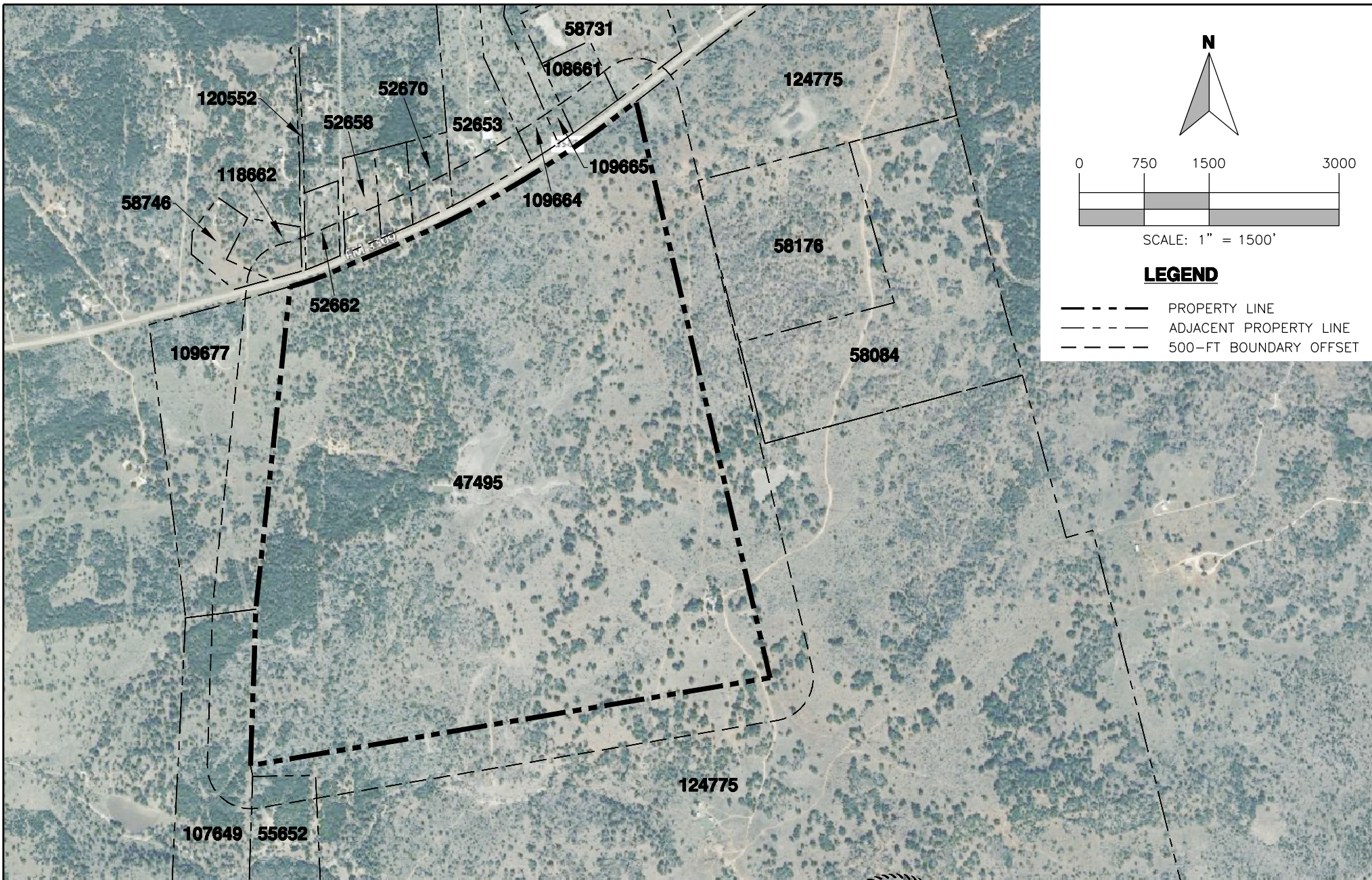
THENCE, North 01°56'00" East, along the west line of this tract, common with the west line of said HVPR4, LLC tract, common with the east line of said Manning tract, a distance of 1,822.64 feet, to a 1/2" iron rod set, marking the southwest corner of said Hall tract, common with the northeast corner of said Manning tract, marking an angle corner of said HVPR4, LLC tract, common with an angle corner of said HVPR4, LLC tract, for an angle corner of this tract;

THENCE, North 06°04'45" East, along the west line of this tract, common with the west line of said HVPR4, LLC tract, common with the east line of said Hall tract, a distance of 3,729.46 feet, to the POINT OF BEGINNING, containing 710.32 acres of land, more or less.

Exhibit B

Permitted Exceptions to Deed

- a. All leases, grants, exceptions or reservations of coal, lignite, oil, gas and other minerals, together with all rights, privileges, and immunities relating thereto, appearing in the Public Records.
- b. That certain Order dated January 28, 2002, adopting Burnet County Subdivision and Development Regulations, and recorded in Volume 1043, Page 85 and amended in Volume 1377, Page 722 and under Document No. 201100417 rerecorded under Document No. 201100547, Official Public Records of Burnet County, Texas.



SCALE: 1" = 1500'

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- 500-FT BOUNDARY OFFSET

SHEET NO.:
001
OF 001

IMAGE:	BING MAPS 2024
ISSUE DATE:	10/31/2024
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	1500'
JOB NO.:	10853-256

PARCELS MAP			
LCRA PERMITTING – BURNET QUARRY			
ASPHALT INC.			
3221 FM 3509, TX 78611, BURNET COUNTY			
REV.	DESCRIPTION	BY	DATE

11/1/2024

Curt G. Campbell, P.E.
License No. 106851

WESTWARD
Environmental Engineering, Natural Resources.
P.O. Box 2205 Boerne, Texas 78006
(830) 249-8284 Fax: (830) 249-0221
TBPE REG. NO.: F-4524

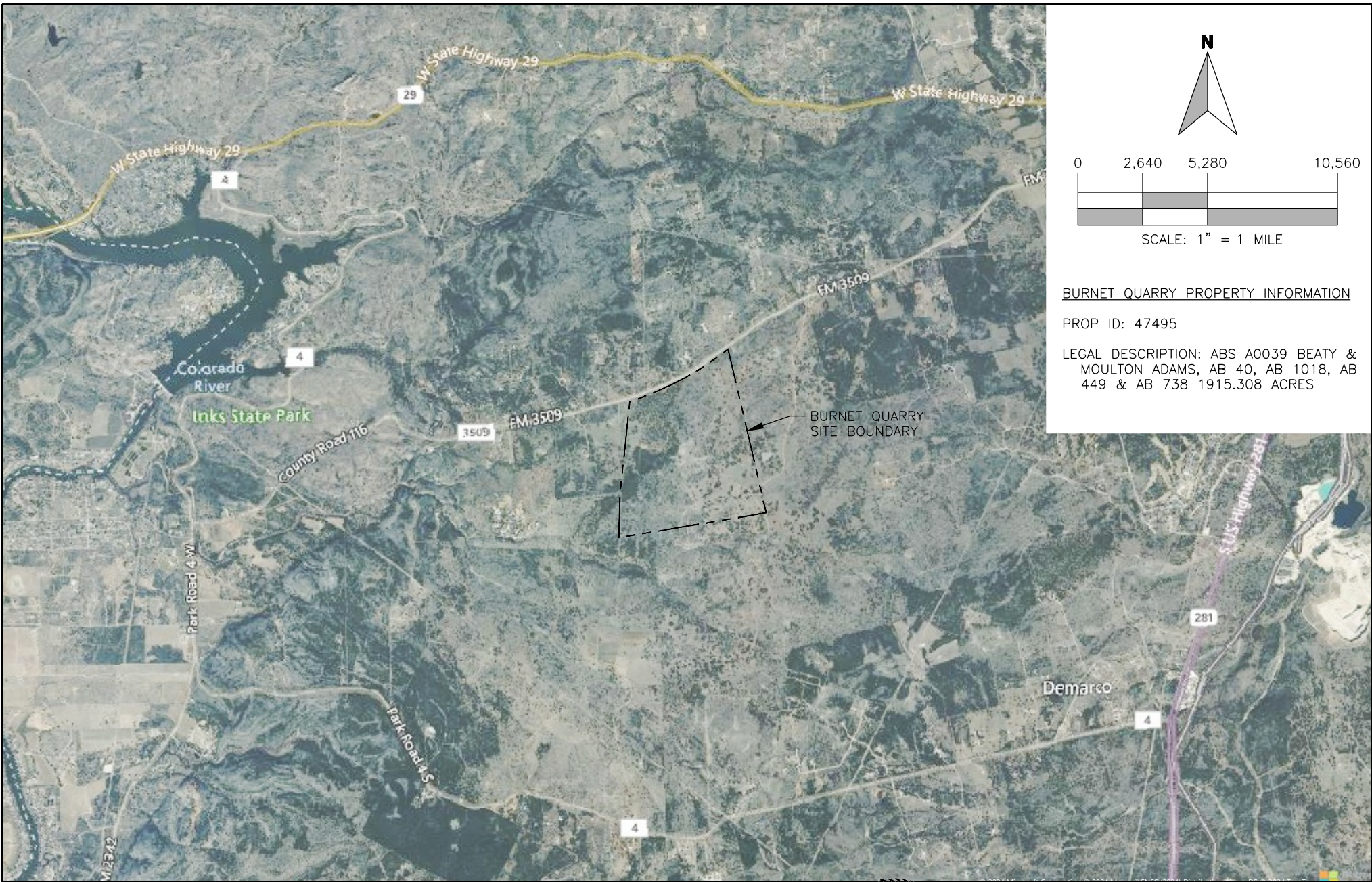
Adjacent Parcels Map and Ownership Information

Adjacent Property Owner Information

Property ID	Owner Name	Mailing Address	Property Address
58746	PATTON DAVID L & CARRIE BECKHAM	9343 LOCARNO DR., DALLAS, TX 75243	4850 FM 3509, BURNET, TX 78611-5020
118662	BERMENDER CRAIG & PAMELA	15100 HEDDER CIR., LEANDER, TX 78641	4878 FM 3509, BURNET, TX 78611
120552	MCNIEL LARRY W & SHIRLEY L	504 LEVON LN., BURNET, TX 78611	LEVON LN., BURNET, TX 78611
52662	RUBIO GUALBERTO P	2730 FM 3509, BURNET, TX 78611	160 WILLIAMS DR., TX
52658	WILLIAMSON FRED & FAYE	105 WILLIAMS RD., BURNET, TX 78611	105 WILLIAMS RD., BURNET, TX 78611-5659
64658	DIXON SHENA	4510 FM 3509, BURNET, TX 78611	4510 FM 3509, BURNET, TX 78611
52670	WARD JAMES MONROE & GERI LEE	4400 FM 3509, BURNET, TX 78611	4400 FM 3509, BURNET, TX 78611
52653	LEGAULT MARILYN & DAVID OWENS	4342 FM 3509, BURNET, TX 78611	4342 FM 3509, BURNET, TX 78611
109664	NO PROPERTY INFORMATION LISTED	NO PROPERTY INFORMATION LISTED	NO PROPERTY INFORMATION LISTED
109665	PRINTZIPAL LLC	3610 FM 3509, BURNET, TX 78611	NO PROPERTY INFORMATION LISTED
108661	PRINTZ RANDY	3610 FM 3509, BURNET, TX 78611	NO PROPERTY INFORMATION LISTED
58731	PRINTZIPAL LLC	3610 FM 3509, BURNET, TX 78611	3610 CR 116, BURNET, TX 78611
124775	HVPR4 LLC	13240 POND SPRINGS RD., AUSTIN, TX 78729	FM 3509, BURNET, TX 78611
58176	HVPR4 LLC	13240 POND SPRINGS RD., AUSTIN, TX 78729	HOOVER VALLEY RD., TX
58084	HVPR4 LLC	13240 POND SPRINGS RD., AUSTIN, TX 78729	HOOVER VALLEY RD., TX

55652	HVPR4 LLC	13240 POND SPRINGS RD., AUSTIN, TX 78729	HOOVER VALLEY RD., TX
107649	MANNING ROBERT J & NANCY L	1000 INDIAN SPRINGS RD., BURNET, TX 78611	FM 3509, TX
109677	HALL LERA CAROLYN	18706 ARCANO GLEN CT., HUMBLE, TX 77346	4905 FM 3509, BURNET, TX 78611

Note: Information presented as recorded on the Burnet County CAD Property Search Viewer



BURNET QUARRY PROPERTY INFORMATION

PROP ID: 47495

LEGAL DESCRIPTION: ABS A0039 BEATY & MOULTON ADAMS, AB 40, AB 1018, AB 449 & AB 738 1915.308 ACRES

SHEET NO.:
001
OF 001

IMAGE:	BING MAPS 2024
ISSUE DATE:	7/9/2024
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE:	1" = 1 MILE
JOB NO.:	10853-256

LOCATION MAP			
LCRA PERMITTING - BURNET QUARRY			
ASPHALT INC.			
3221 FM 3509, TX 78611, BURNET COUNTY			
REV.	DESCRIPTION	BY	DATE

11/1/2024

Curt G. Campbell, P.E.
License No. 106851

WESTWARD
Environmental Engineering, Natural Resources.
P.O. Box 2205 Boerne, Texas 78006
(830) 249-8284 Fax: (830) 249-0221
TBPE REG. NO.: F-4524

ASPHALT INC.

LCRA Highland Lakes Watershed Ordinance
Engineer's Report

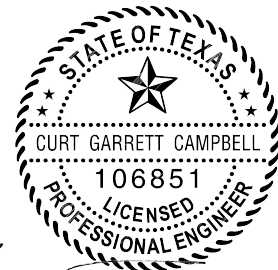
Burnet Quarry
3221 FM 3509
Burnet, Texas 78611
Burnet County

Submitted to: The Lower Colorado River Authority

Prepared By:



Boerne, Texas
830-249-8284
Date: December 2024
Project No. 10853-256
-JPW/NMS-



Signature: _____
Curt G. Campbell, PE - License No. 106851
TX PE Firm No. 4524
Date: _____ 12/10/2024

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1 INTRODUCTION

1.1 Purpose

The purpose of this plan is to support the development of a construction aggregate processing plant and quarry operation by Asphalt Inc. (Applicant) on an approximately 710-acre site located at 3221 Farm Road 3509, Burnet, Texas 78611 (Site). The primary quarrying area is planned to be approximately 327 acres in total area. The site will also have 5 smaller pit areas totaling approximately 30 acres that will be utilized to handle onsite stormwater runoff. The site will include the follow infrastructure: a processing plant, haul roads, a scale and scale house and Garman pits (test pits). The plant pad is 36.26 acres which includes the proposed stockpiling and materials handling areas. The proposed stormwater permanent BMPs include several quarry pits, final earthen perimeter berms, and vegetated filter strips.

1.2 Site Description

Pre-development Conditions:

The area to be developed has historically been utilized as a residential/agricultural property and has an abandoned house in the southeast corner. The site is mostly vegetated with native vegetation. Onsite slopes average approximately 3%, with existing drainage flowing unobstructed generally from the east to west. There are three USGS Blue Lines that enter the property but terminate within the boundary indicating the site is of generally higher elevation and drainage lows on site are minimal and not well defined. The existing drainage flows unobstructed toward the drainage lows as sheet flow across native land except for a few minor ranch roads. There is one small existing stock pond onsite (see Existing Conditions Map). Minimal existing impervious cover exists in the form of residential structures.

Post-development Conditions:

Although the site is not currently planned to be total developed, to be overly conservative, we have sized BMPs with the assumption that the entire site will be impervious surface minus a 50 foot perimeter buffer, a 200 foot roadway buffer and a buffer as required by LCRA for a small portion of the drainage that has a drainage area greater than 320 acres. The planned development acreage of approximately 40 acres will include the processing plant, haul roads, a scale and scale house, and product stockpile areas. The final quarry pit will cover approximately 327 acres in the southeast portion of the site and will be self-contained. The pad are for the processing plant will be graded slightly to assure proper diversion of drainage to the primary quarry pit. Two Garman Pits are proposed for processing of mined material which will be used for water recycling and material capture. The total Garman Pit area includes approximately 4.6 acres. The Garman Pits will be constructed such that runoff from the associated access and maintenance areas will be fully retained within the pits. Runoff from these pits will be self-contained.

In an effort to be extremely conservative the site has been evaluated assuming that impervious surface may be placed anywhere onsite. This is a very conservative approach since there is no intent to develop the entire site as impervious surface. The purpose of this approach is to set up a plan that pre-establishes the BMPs for any situation that may arise where the site needs additional impervious surface to adjust to market conditions. A total of six drainage areas are proposed for the site (DA-01, DA-2A, DA-2B, DA-3A, DA-3B and DA-04 (Initial and Final Conditions)). The pit BMPs for drainage areas 1 and 2A will be constructed at the initiation of the project and will

also serve as construction BMPs. This 2 BMPs may be the only pit BMPs constructed other than the main quarry pit. The additional pit BMPs have been calculated to be available in the future if needed. The drainage areas will all be treated by these Quarry Pits, again with the very conservative assumption that the entire drainage area may be used for stockpiles or other miscellaneous impervious surfaces and are considered as such for the sake of this analysis. Each pit was designed using the calculation spreadsheet attached as **Appendix I – Stormwater Runoff Calculations – Burnet Quarry**. Each pit was designed to accommodate a minimum of one foot of freeboard between the top of the basin walls and the 10-year water surface elevation. Stormwater will be conveyed to each of the six pits by berms and swales with a minimum 0.5% grade. The proposed entry road and scale house area is encompassed in DA-1 (sub-basin of DA-1) and DA-3. The portion of this 3.67-acre impervious cover area in DA-1 will be treated by the pit and the remaining acreage (less than 3 acres) in DA-3 will be treated with a downgradient vegetative filter strip.

It is anticipated that the main entrance will be off FM 3509/Hoover Valley Road on the northeast side of the site. The entry road will be treated with natural vegetative filter strips for areas that do not drain to the onsite quarry pits.

2 BUFFER ZONES

Of the 3 USGS blue lines and their associated drainage areas only one drainage area is larger than 320 acres. According to LCRA quarry guidance a buffer shall be established on drainage courses with a drainage area greater than 320 acres. The drainage course that flows east to west across the center of the property meets this definition. Therefore, a buffer zone of a minimum width of 25-feet from the top of the channel bank on each side of the drainage is proposed along the western site boundary. The channel bank was established in the field during a pre-submittal site visit with LCRA staff to be conservatively 50 feet on each side of the stream centerline. The total buffer width is therefore 75 feet from the centerline of the stream or 150 feet total.

3 ROADWAY TREATMENT

Natural Vegetative Filter Strips (NVFS) will be utilized to treat runoff from the portions of roadway which exist outside the primary drainage areas. The drainage area for DA-1B is approximately 75 acres and the impervious surface area for this section of road is less than 3 acres. The proposed NVFS, as shown on the Interim Conditions Map is 30 feet wide, which is the minimum allowable length and has a total surface area of 64,841.33 square feet.

4 PROPOSED STORMWATER EARTHEN BERMS

Although 6 drainage areas have been analyzed and minimum pit areas have been determined, at the initiation of the project only development within DA-01 and DA-02A is proposed which would not otherwise drain to the main quarry pit (DA-04). Stormwater from Drainage Areas DA-01 and DA-02A will be directed to the proposed pits via earthen berms and swales as indicated on Interim Conditions Map. The applicant proposes a large berm and grading to convey stormwater to the pit. Berm heights will be a minimum of 4 feet.

5 GROUNDWATER MONITORING STATEMENT

The quarry excavation is anticipated to be approximately 80 feet deep at this site. A review of the adjacent well logs indicates that groundwater surfaces are in excess of 100 feet below the surface. It is not anticipated that groundwater will be encountered as part of this project, therefore the Groundwater Monitoring Plan is not necessary. Should conditions change onsite an

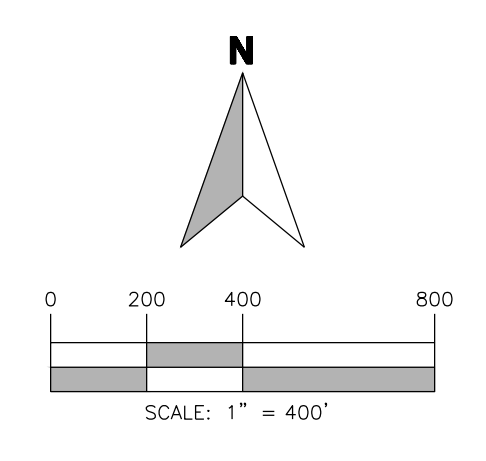
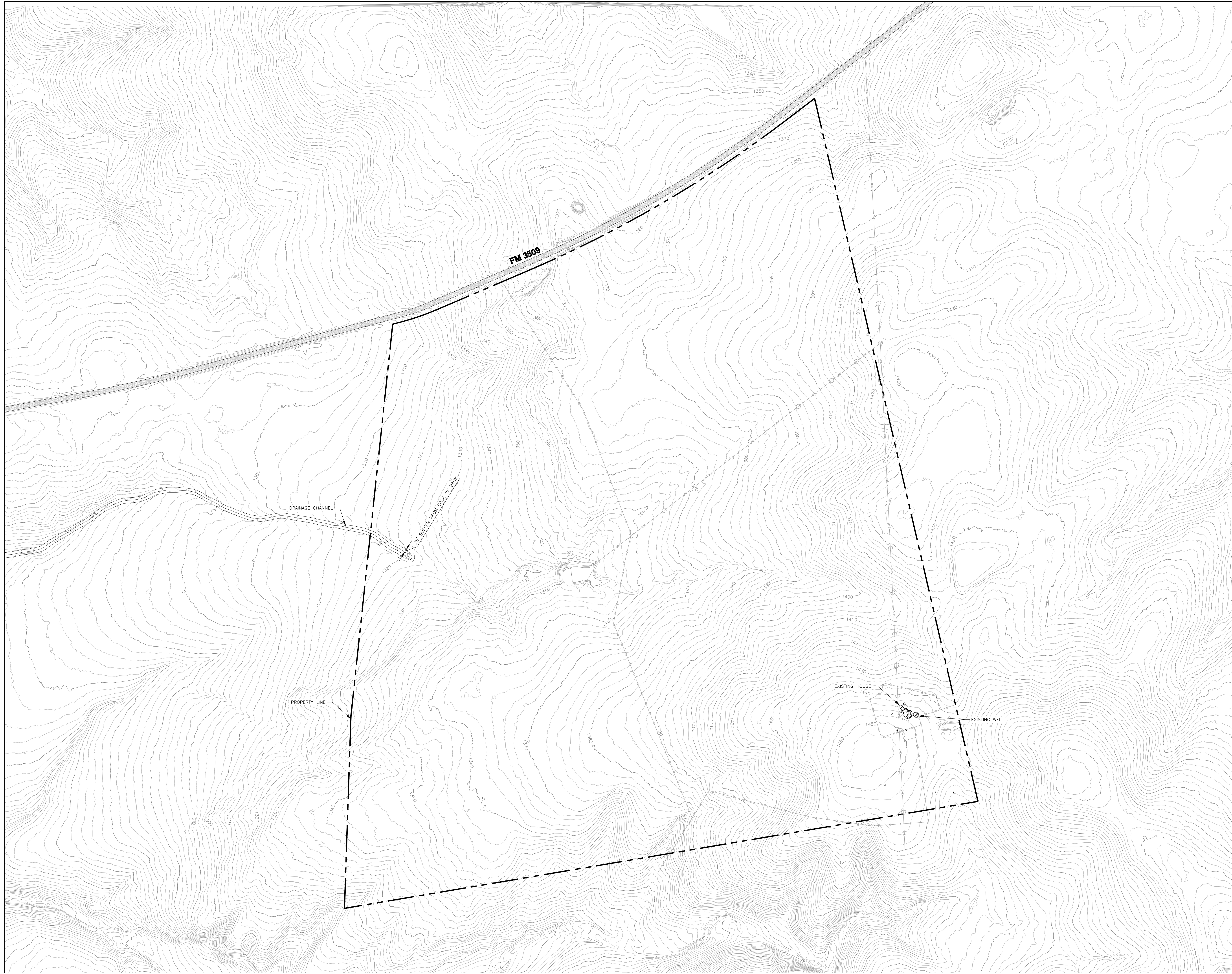
groundwater monitoring plan can be prepared at that time. In addition, if groundwater is encountered a permit will become necessary with the local groundwater conservation district. Please see the Hydrogeologic Report for further information.

6 SURFACE WATER MONITORING STATEMENT

Surface water monitoring for this site is proposed to be conducted in accordance with the site's TXR05 Industrial SWPPP as administered by TCEQ.

Appendix – I

Existing Conditions



LEGEND

- PROPERTY LINE
- - - - - BUFFER LINE
- - - - - EXISTING OVERHEAD ELECTRIC
- - - - - EXISTING FENCELINE
- ⊙ WATER WELL
- ▭ ASPHALT AREA

IMAGE:	N/A
ISSUE DATE:	12/9/2024
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE:	1" = 400'
JOB NO.:	10853.256

SHEET NO.:
C.0
OF C.4

WESTWARD
Environmental Engineering, Natural Resources,
P.O. Box 2205 Boerne, Texas 78006
(830) 249-8284 Fax: (830) 249-0221
TBPB REG. NO.: F-4524
TBPB REG. NO.: 50112

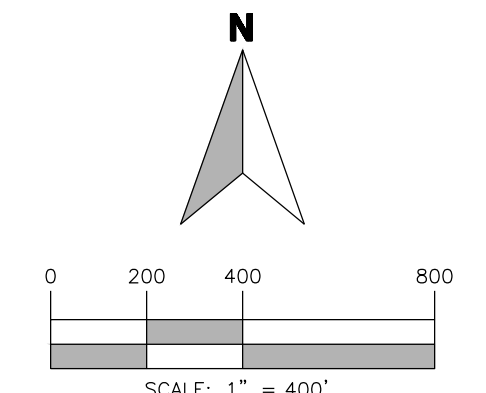
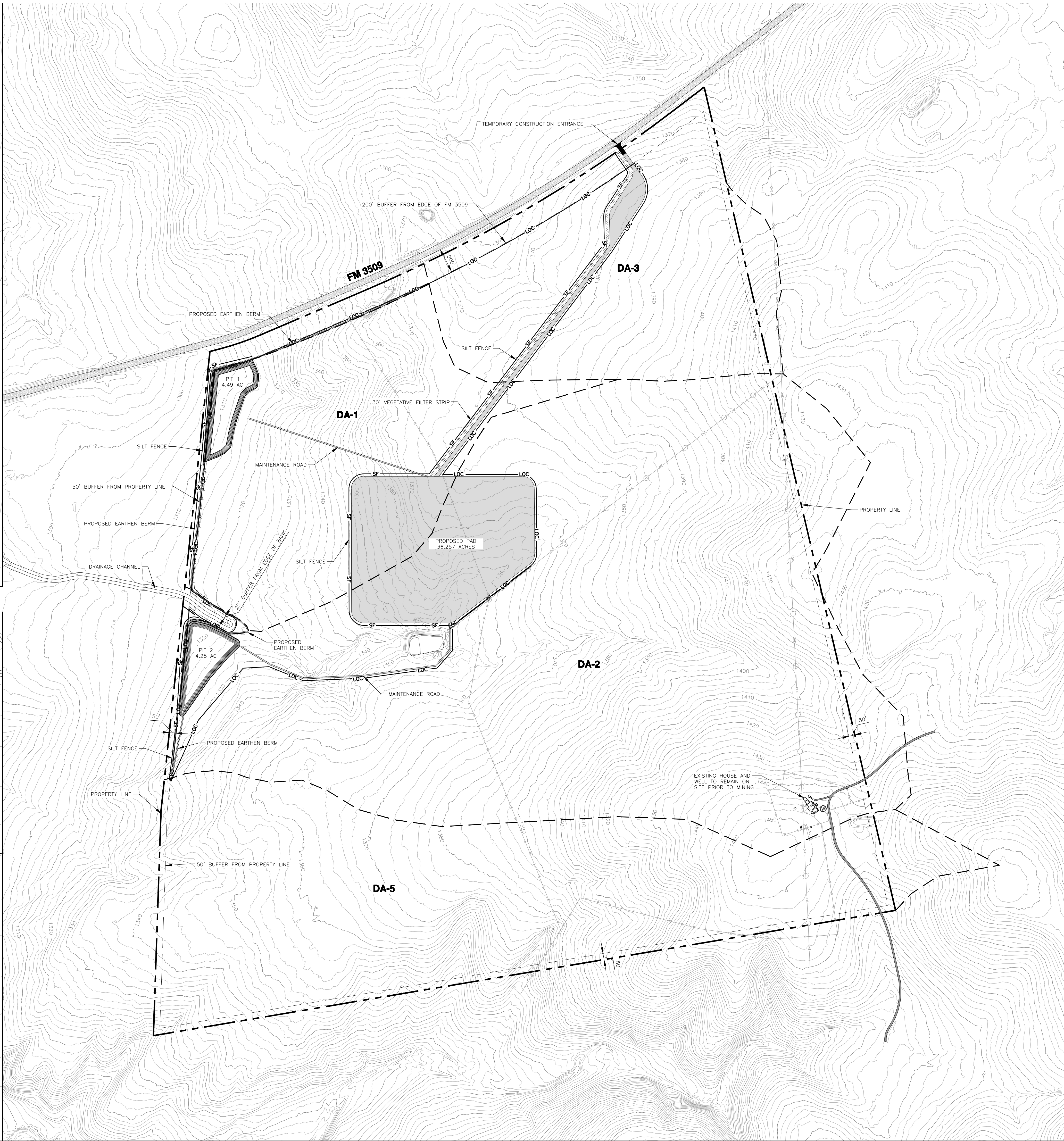
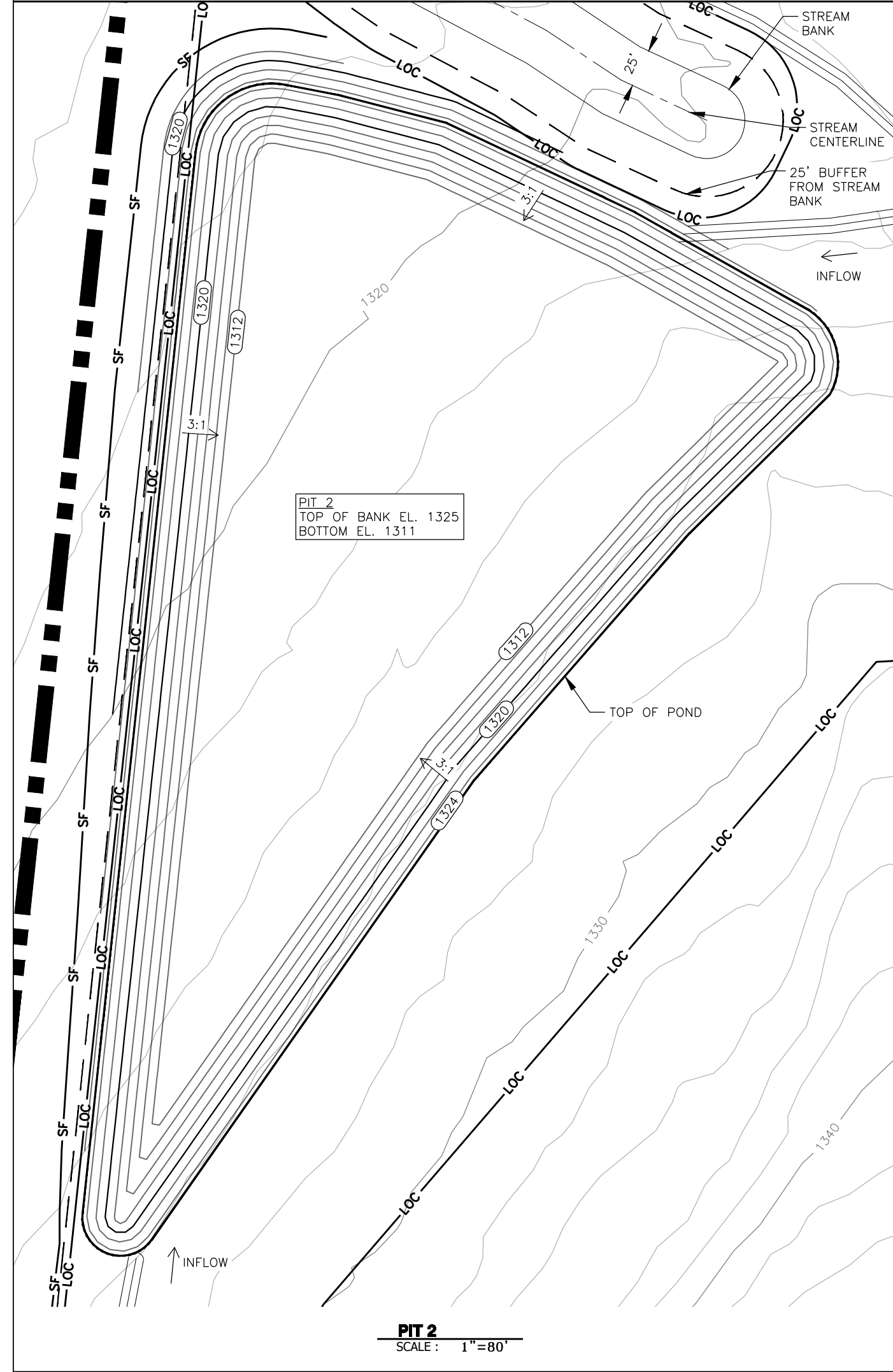
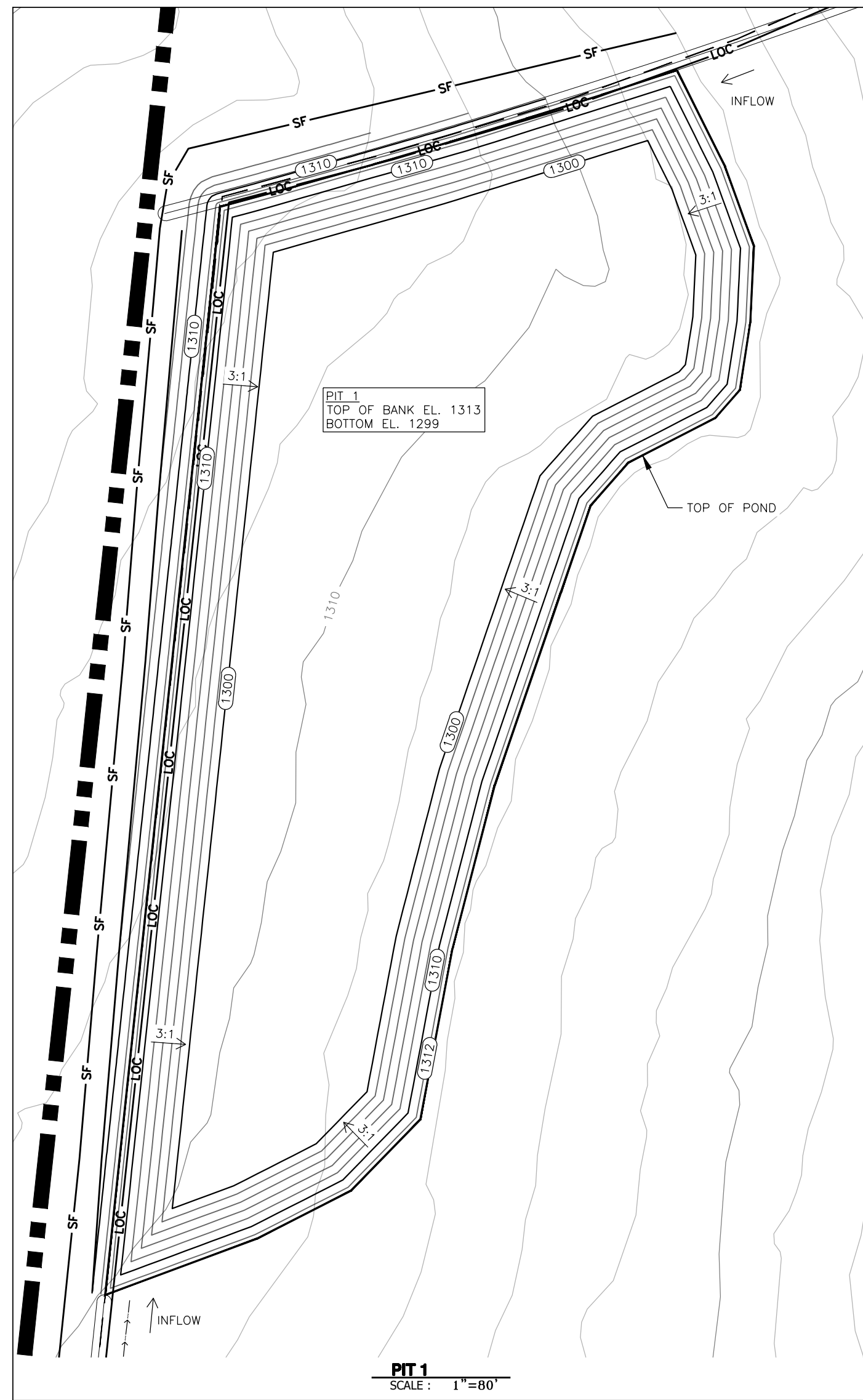
REV.	DESCRIPTION	BY	DATE

STATE OF TEXAS
CURT GARRETT CAMPBELL
06851
LICENSED PROFESSIONAL ENGINEER
Curt G. Campbell, P.E.
License No. 106851
12/10/2024

EXISTING CONDITIONS
LCRA PERMITTING – BURNET QUARRY
ASPHALT, INC.
3221 FM 3509, BURNET, TX 78611

Appendix – II

Proposed Grading & Drainage Patterns



LEGEND

- PROPERTY LINE
- - - EXISTING FENCELINE
- - - EXISTING OVERHEAD ELECTRIC
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- DRAINAGE AREAS
- DITCH-SWALE
- LIMITS OF CONSTRUCTION
- SILT FENCE
- BERM (TOP & TOE OF SLOPE)
- STOCKPILE
- WATER WELL
- ASPHALT AREA
- BASE AREA
- VEGETATIVE FILTER STRIP
- TEMPORARY CONSTRUCTION ENTRANCE

NOTE:

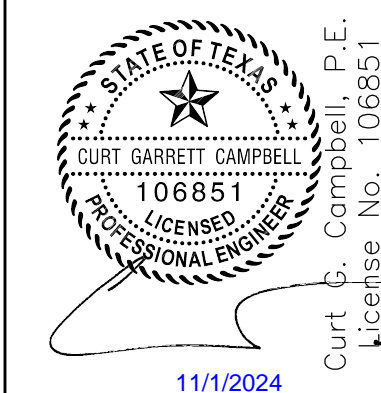
- NO EXCAVATION IS PROPOSED IN THE 50' BUFFER FROM THE PROPERTY LINE OR THE 200' BUFFER FROM FM 3509.
- 50' PROPERTY LINE SETBACK DUE TO TEXAS PIT SAFETY RULES FOR SLOPE STABILITY.
- NORTH PROPERTY LINE SETBACK (200' MEASURED FROM EDGE OF PAVEMENT) IS DUE TO TXDOT PIT SAFETY RULE FOR QUARRIES ALONG PUBLIC ROADWAYS.

IMAGE:	N/A
ISSUE DATE:	11/01/2024
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE:	1" = 400'
JOB NO.:	10853-256

SHEET NO.:
C.1
OF C.4

WESTWARD
Environmental Engineering, Natural Resources,
P.O. Box 2205 Boerne, Texas 78006
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TBP REG. NO.: F-4524
TBP REG. NO.: 50112

REV.	DESCRIPTION	DATE	BY



EROSION & SEDIMENTATION CONTROL PLAN
LCRA PERMITTING - BURNET QUARRY
ASPHALT INC.
3221 FM 3509, BURNET, TX 78611

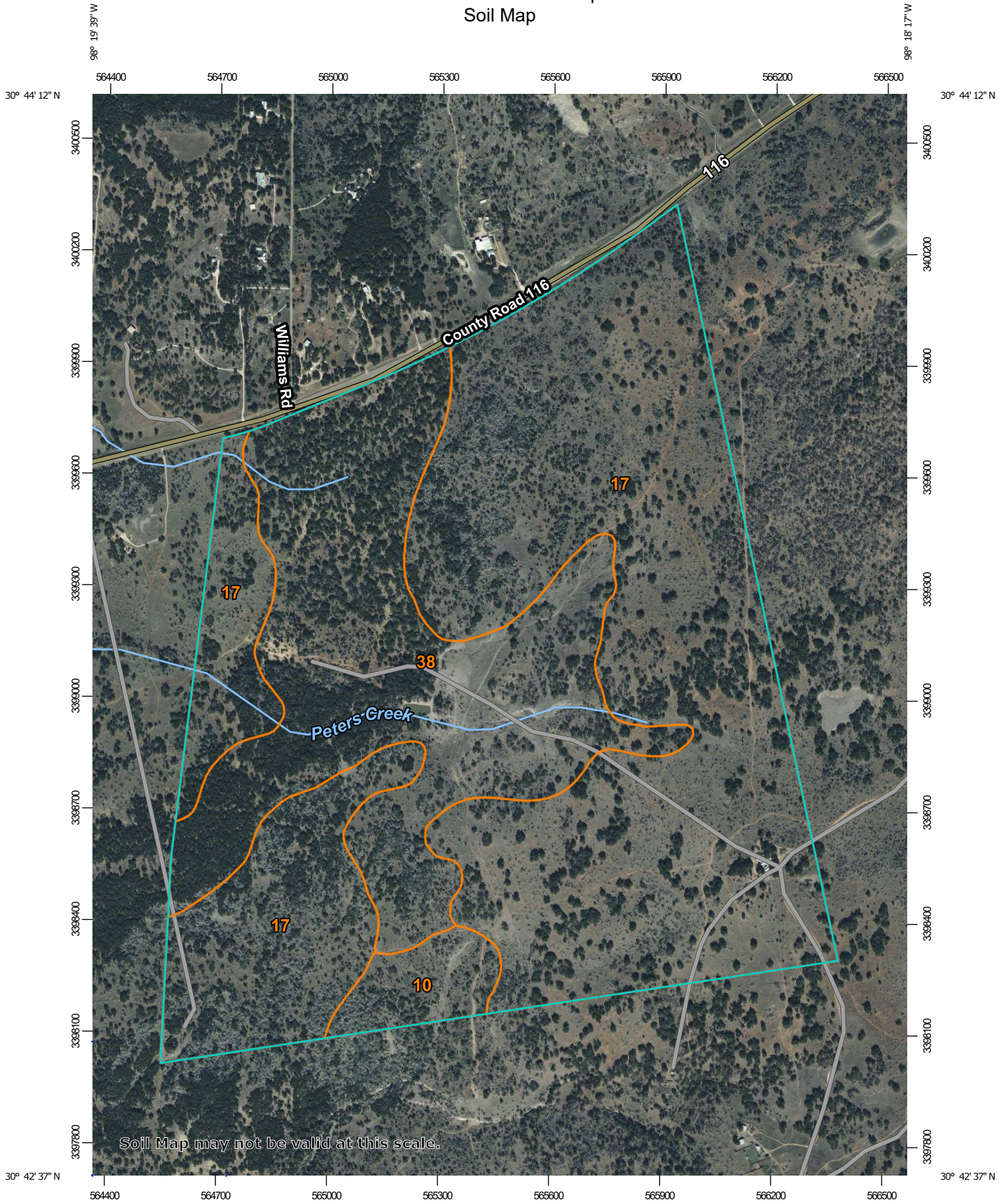
Appendix – III

Location & Schematics of BMPs

Appendix – IV

Soils Map

Custom Soil Resource Report Soil Map



Map Scale: 1:14,200 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

BMP Maintenance Plan

General Guidelines

The ability and the commitment to maintain stormwater BMPs are necessary for the proper operation of these facilities. Maintainability and facility access are particularly important issues for a BMP installed below grade.

Accessibility

According to many maintenance personnel, the biggest problem they encounter is not the amount or frequency of maintenance they must perform, but the difficulties they have in simply reaching the location of the required maintenance work. In order for proper maintenance to be performed, the various components of the stormwater system and, indeed, the facility itself, must be accessible to both maintenance personnel and their equipment and materials.

Legal barriers such as lack of access rights or inadequate maintenance easements can stop the best maintenance efforts before they can even get started. This is especially pertinent to project reviewers, who normally have the authority to require such legal aspects of the project.

Durability

The use of strong, durable, and non-corroding materials, components, and fasteners can greatly expedite facility maintenance efforts. These include strong, lightweight metals such as aluminum for trash racks, orifice and weir plates, and access hatches; reinforced concrete for outlet structures and inlet headwalls; hardy, disease resistant vegetation for bottoms, side slopes, and perimeters; and durable rock for gabions and riprap linings.

Pit Dewatering

All dewatering associated with the mining pit will conform to standards and instructions from the TXR05 stormwater plan and Central Texas Groundwater Conservations District Quarry Permit associated with this site.

Sediment Disposal

Stormwater pollutants include a variety of substances that are deposited on pervious and impervious surfaces and then transported by the next rainfall. Consequently, a variety of contaminants that may be classified as hazardous or toxic may enter stormwater management systems. These contaminants include heavy metals, petroleum hydrocarbons, pesticides, and a variety of organic chemicals. Consequently, several federal and state laws and regulations may apply to the disposal of sediments which accumulate in stormwater systems. Maintenance of BMPs frequently requires disposal of accumulated sediment and other material. In high concentrations, these materials may be classified as special wastes when disposed of in municipal landfills.

BMP Maintenance Requirements

Detailed Inspections

Detailed BMP inspections should occur at least twice annually. At least one of these inspections should be during or immediately following a runoff producing event. Detailed inspections should be performed by an engineer or other stormwater treatment professional. Any deficiencies identified during an inspection should be repaired as soon as practical.

General Site Maintenance

General site maintenance, as described below, should be performed on a regular basis, regardless of the timing of more detailed inspections. Site maintenance should be performed as required to maintain site aesthetics, vegetation, BMP access, and debris removal. At a minimum, site maintenance should be performed twice annually.

- (1) Identify, replant, and restore eroded areas. Add a level spreader, energy dissipation, or other repairs as required to ensure that erosion is not repeated.
- (2) Identify areas that do not have acceptable vegetated covers (80% or higher for most BMPs). Reseed, add soil, and irrigate as required to ensure that coverage requirements are met.
- (3) Mow sites twice annually and as required to keep grass height under 18 inches. Additional mowing may be performed for site aesthetics. Export clippings from site to prevent release of nutrients from decaying plant matter. Remove any woody growth, especially from embankments, berms, and swales. For swales, grass should not be regularly mowed below four inches.
- (4) Use non-chemical methods for maintaining health of vegetation. Pesticides, herbicides, or fertilizers should only be used as a last option, and then as minimally as possible. Fertilizer should rarely be required because runoff will typically contain sufficient nutrient loads.
- (5) Irrigation may be required in order to maintain acceptable levels of vegetated coverage, especially for engineered vegetated strips.
- (6) Never deposit grass clippings, brush, or other debris in BMPs or buffers.
- (7) Prevent over-compaction of BMP components that rely partially or wholly on infiltration (vegetation strips, bio-retention, and other basins). Mowing and other maintenance should be performed with hand equipment or a light-weight lawn tractor.
- (8) Remove any built-up sediment and debris, especially along uphill edges, berms, swales, and level spreaders; and around BMP inlets and outlets.
- (9) Identify any other problems. A detailed inspection may be required.

BMP Maintenance Permit

Once a project containing permanent BMPs is completed, the project owner must complete a BMP Maintenance Permit Application per Appendix 1.7.1 of the HLWO Technical Manual following the submittal requirements in Appendix 1.7. Also, the party responsible for BMP maintenance should use the checklists found in Appendix 1.7.2 and 1.7.3 to guide their inspections and maintenance activities.

BMP Maintenance Plan

I, Jack Wheeler, have read and understand the BMP Maintenance Plan contained in this Development Permit Application.

I understand the specific Permanent Best Management Practices and associated inspection and maintenance schedule which are outlined in this plan. Asphalt Inc., LLC, will implement these inspections and perform maintenance as required to meet the intent of the plan.

Name and signature of responsible party for maintenance of BMPs

Print Name: Jack Wheeler Title: Manager
Asphalt Inc., LLC

Signature: [Handwritten Signature] Date: 10/30/24

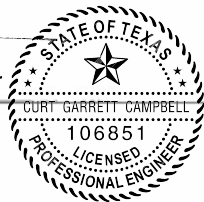
Asphalt Inc., LLC
11675 Jollyville Road, Suite 150
Austin, TX 78759

Name and signature of Engineer

Print Name: Curt Garrett Campbell, PE
Westward Environmental, Inc.

Signature: [Handwritten Signature] Date: 11/1/2024

Westward Environmental, Inc.
4 Shooting Club Rd.
Boerne, TX 78006
Phone: 830-249-8284
Fax: 830-249-0221



General Reclamation Guidance Plan

Upon completion of quarrying activities, the Applicant proposes to leave the quarry pits as water features as a final measure to protect water quality and maintain compliance with the Highland Lakes Watershed Ordinance. Areas which do not drain to the quarry pit will be vegetated and stabilized. This includes areas which drain to constructed BMPs. BMPs will be maintained in accordance with the BMP Maintenance Plan included in the Hydrologic Report.

Reclamation of buildings and structures will include removal of the scale, office, processing plant, and their associated foundation materials, where practicable. The roadways will remain in place throughout the site to allow access for monitoring purposes. Seed and/or hydro mulch will be spread across disturbed areas to provide site stabilization.

Mulching, or the placement of hay, grass, wood chips, straw, or synthetic material on the soil will be utilized for permanent seeding once the project is complete. All disturbed areas will be applied with hydro mulching. Mulch holds moisture, dampens temperature extremes and retards erosion on steep slopes during seed establishment. Soils that cannot be seeded due to the season will be mulched to provide temporary protection.

Seed:

Provide seed from the previous season’s crop meeting the requirements of the Texas Seed Law, including the testing and labeling for pure live seed (pls = purity x germination). Use within 12 mo. from the date of the analysis. When buffalograss is specified, use seed that is treated with KNO₃ (potassium nitrate) to overcome dormancy. Use table 1 to determine the appropriate seed mixture and application rates.

**Table 1 (continued)
 Permanent Rural Seed Mix**

District and Planting Dates	Clay Soils		Sandy Soils	
	Species and Rates (lb. PLS/ac.)		Species and Rates (lb. PLS/ac.)	
14 (Austin) Feb. 1 – May 15	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	0.9	Bermudagrass	2.4
	Sideoats Grama (Haskell)	2.7	Weeping Lovegrass (Ermelo)	0.8
	Little Bluestem (Native)	1.0	Sand Lovegrass	0.8
	Blue Grama (Hachita)	0.9	Partridge Pea	1.0
	Illinois Bundleflower	1.0		

**Table 3
 Temporary Cool Season Seeding**

District	Dates	Seed Mix and Rates (lb./ac.)	
Austin (14)	September 1 – November 30	Tall Fescue	4.5
		Western Wheatgrass	5.6
		Wheat (Red, Winter)	34

**Table 4
 Temporary Warm Season Seeding**

District	Dates	Seed Mix and Rates (lb./ac.)	
All	May 1 – August 31	Foxtail Millet	34

Immediately after planting the seed or seed mixture, apply cellulose fiber mulch uniformly over the seeded area at the following rates:

- sandy soils with slopes of 3:1 or less 2500 lb. Per acre.
- sandy soils with slopes greater than 3:1 3000 lb. Per acre.
- clay soils with slopes of 3:1 or less 2000 lb. Per acre.
- clay soils with slopes greater than 3:1 2300 lb. Per acre.

Cellulose fiber mulch rates are based on dry weight of mulch per acre. Mix Cellulose fiber mulch and water to make a slurry and apply uniformly over the seeded area using suitable equipment. Use a tacking agent applied in accordance with the manufacturer's recommendations or a crimping method on all straw or hay mulch operations.

Fertilizer: use a complete fertilizer containing nitrogen (N), phosphoric acid (P), and potash (K) nutrients. At least 50% of the nitrogen component must be of a slow-release formulation. Ensure that fertilizer is in an acceptable condition for distribution in containers labeled with the analysis. Fertilizer is subject to testing by the Texas A&M Feed and Fertilizer Control Service in accordance with the Texas Fertilizer Law.

**Engineer's Cost Estimate for
Erosion/Sediment Controls**

Pay Item	Units	Cost per Unit	Estimate per Pay Item
Construction Entrance	1.0	\$1,500.00	\$ 1,500.00
¹ Erosion Control Blankets	23,302.10	\$0.34	\$ 7,922.71
¹ Erosion Control Blanket Installation	N/A	N/A	\$ 0.00
Silt Fence or Mulch Sock (L Ft.)	10,115.01	\$2.00	\$ 20,230.02
Rock Berms (L Ft)	50	\$30.00	\$ 1,500.00
² Seed Mixture (per acre)	199.61	\$145.60	\$ 29,063.22
² Seed Application (labor + equip rental)	1 week	See below ¹	\$ 2,500.00
³ Water Truck Rental (daily rate)	9 days	\$700.00	\$ 6,300.00
³ Water Application (labor)	9 days	\$200.00	\$ 1,800.00
⁴ Hydro Mulch (sq. yds)	5,171	\$1.00	\$5,171.18
<i>Subtotal:</i>			\$75,987.13
10% Contingency:			\$ 7,598.71
TOTAL			\$83,585.84

¹Erosion Control Blanket quantity is based on application for stabilization of the initial pit slopes and an extra 500 square yard contingency has been added to cover any other slopes that exceed 3H:1V. Installation cost assumes two people working eight hour days for two days at \$25.00/hour. An additional \$400 was added for contingency/equipment costs.

²Seed and Application assumes the following:

- 199.61-acre seed application area within the proposed limits of construction using appropriate species at the application rates listed in Table 1 or other appropriate mixture listed in Tables 3-3 and/or 3-4 in the LCRA Technical Manual;
- Prices of seed may vary and are based on currently available seed (see current price estimates used in Table 1 below);
- Approximately \$1,500.00 estimated equipment rental for one week; and
- One person working 8 hours/day for one week at \$25/hour.

³Water Application assumes the following:

- Rental of a water truck at approximately \$700/day (daily rate);
- Water from the well on-site will be utilized;
- One person working an 8-hour day at \$25.00/hour;
- Seeding occurs in early spring and watering occurs every two weeks for the first three months, followed by once monthly until the vegetation is established, approximately six months total.

⁴Hydro Mulch Mulch will be utilized for stabilization on slopes 3H:1V or flatter, along berm and swale slopes.

Table 1. Example of Year-Round Seed Mixture

Species	Pounds per acre	Price per pound	Subtotal per acre
Sideoats grama (<i>Bouteloua curtipendula</i>)	2.0	\$15.00	\$30.00
Buffalograss (<i>Bouteloua dactyloides</i>)	1.4	\$36.50	\$51.10
Canadian wildrye (<i>Elymus canadensis</i>)	1.4	\$20.00	\$28.00
Engelmann's daisy (<i>Engelmannia peristenia</i>)	0.6	\$41.00	\$24.60
Green sprangletop (<i>Leptochloa dubia</i>)	2.6	\$16.00	\$40.60
Little bluestem (<i>Schizachyrium scoparium</i>)	1.8	\$29.00	\$52.20
			\$226.50

From the Water Quality Management Technical Manual:


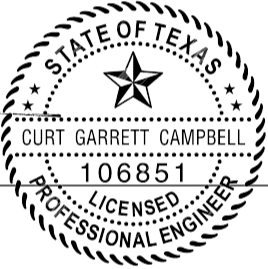
Curt Campbell, PE - TX License. No. 144228 Registered Professional Engineer

Table 3-3 Temporary Seeding for Burnet, Travis, and Llano Counties

Dates	Climate	Species (lb/ac)	
Sept 1 to Nov 30	Temporary Cool Season	Oats (<i>Avena sativa</i>)	21.0
		Wheat (Red, Winter)	30.0
		(<i>Triticum aestivum</i>)	
		Total	51.0
Oct 1 to Mar 30	Temporary Cool Season	Cereal Rye (<i>Secale cereale</i>)	70.0
May 15 to Aug 31	Temporary Warm Season	Foxtail Millet (<i>Setaria italica</i>)	30.0

Table 3-4 Permanent Seeding for Burnet, Travis, and Llano Counties

Dates	Climate	Species (lb/ac)	
Year Round	Permanent Cool/Warm Season (Native Species)	Purple three-awn (<i>Aristida purpurea</i>)	1.4
		Sideoats grama (<i>Bouteloua curtipendula</i>)	2.0
		Silver bluestem (<i>Bothriochloa laguroides</i>)	6.0
		Buffalograss (<i>Buchloe dactyloides</i>)	1.4
		Canadian wildrye (<i>Elymus Canadensis</i>)	1.4
		Engelmann's daisy (<i>Engelmannia pinnatifida</i>)	0.6
		Green sprangletop (<i>Leptochloa dubia</i>)	2.6
		Mexican hat (<i>Ratibida columnifera</i>)	1.0
		Little bluestem (<i>Schizachyrium scoparium</i>)	1.8
		Indiangrass (<i>Sorghastrum nutans</i>)	1.8
		Texas Wintergrass (<i>Nassella leucotricha</i>)	15.0
		Total	35.0
		Mar 30 to Oct 1	Permanent Warm Season
Oct 1 to Mar 30	Permanent Cool/Warm Season	Bermuda (<i>Cynodon dactylon</i>) (unhulled)	70.0
		Cereal Rye (<i>Secale cereale</i>)	90.0
		Total	160.0

Signature of Registered Professional Engineer

Date: 11/1/2024

Westward Environmental, Inc. – Texas Firm Registration # F- 4524

ASPHALT INC.

LCRA Quarry/Mine Permit
Hydrogeologic Report

Burnet Quarry
3221 FM 3509
Burnet, Texas 78611
Burnet County

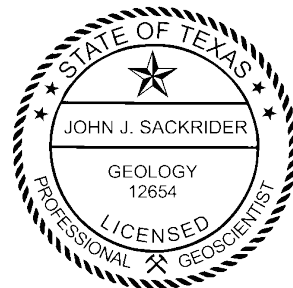
Submitted to: The Lower Colorado River Authority

Prepared By:



Boerne, Texas
830-249-8284

Date: November 2024
Project No. 10853-256
-CT/JG-



Signature: _____

John J. Sackrider, PG – License No. 12654

TX PG Firm No. 50112

Date: 11/1/2024

1.0 PURPOSE

Westward Environmental, Inc. (**WESTWARD**) has been retained by Asphalt Inc., LLC (Client) to prepare a Hydrogeologic Report (Report) for their Burnet Quarry (Site) in Burnet County, Texas. This report was prepared as a required attachment to a Lower Colorado River Authority (LCRA) Highland Lakes Watershed Ordinance (HLO) Quarry/Mine Permit Application.

2.0 REGULATORY GUIDANCE

Lower Colorado River Authority Highland Lakes Watershed Ordinance

This report was prepared in accordance with the LCRA HLO, effective February 1, 2006 and amended January 1, 2022.

3.0 PROJECT LOCATION

The Site is approximately 710 acres located south of FM 3509 and 3.6 miles southwest of the W State HWY 29 intersection in Burnet County, Texas. The Site entrance is located on the south side of FM 3509, at approximately 30.7327366, -98.313530.

4.0 METHODOLOGY

The following sections describe the methods, references, and standards utilized by **WESTWARD** geologists

4.1 Aquifer Characteristics & DRASTIC Classification

Aquifer identification was accomplished through reference of mapped aquifer outcrops and subcrops available through the Texas Water Development Board's (TWDB) Water Data Interactive Groundwater Data Viewer (Viewer), State of Texas Well Reports available through the Texas Department of Licensing and Regulation (TDLR), and regional groundwater information provided through the Central Texas Groundwater Conservation District (CTGCD) website.

DRASTIC Classification was performed in accordance with United States Environmental Protection Agency (EPA) document *DRASTIC: A Standardized System for Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings* (EPA/600/2-87/035). Data utilized in the DRASTIC characterization was collected in the field, and from multiple sources including the TWDB, the U.S. Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Web Soil Survey, the Texas Speleological Survey (TSS), and the U.S. Geological Survey (USGS) National Geospatial Program.

4.2 Karst Identification

WESTWARD geologists conducted a review of Google Earth aerial imagery, multispectral imagery avail through the Texas Natural Resources Information System (TNRIS), the University of Texas Bureau of Economic Geology Geologic Atlas of Texas (GAT) Llano Sheet, applicable USGS Topographic quadrangle(s), the TWDB Water Data Interactive Groundwater Data Viewer (WDIGDV), and the USDA NRCS Web Soil Survey prior to the field investigation.

A field investigation was performed at the Site by Connor P. Tierney, P.G. (#15607) on August 29, 2024.

4.3 Well & Spring Inventory

The Well & Spring Inventory was performed with ESRI ArcGIS software and publicly available shapefile data downloaded from the TWDB and the USGS National Water Information System: Mapper.

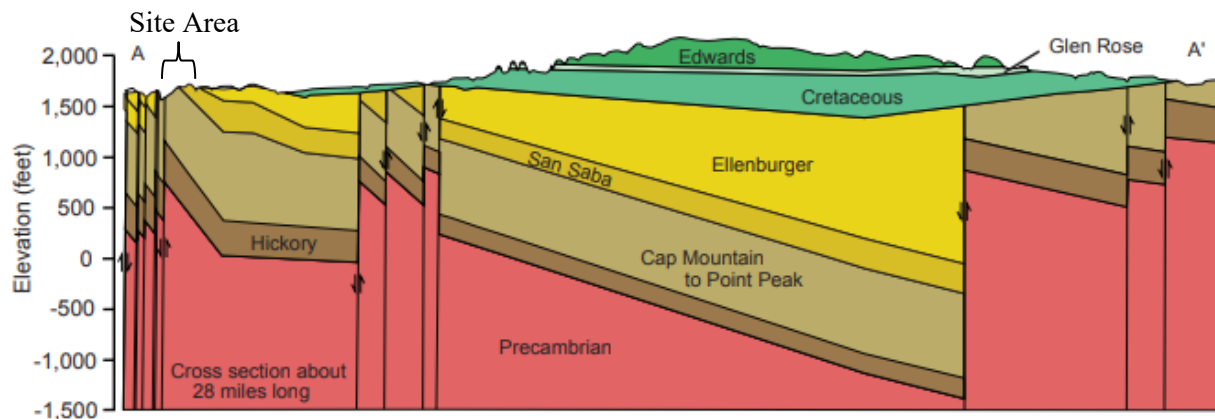
5.0 AQUIFER CHARACTERISTICS & DRASTIC CLASSIFICATION

A desktop review was utilized for aquifer identification and DRASTIC classification. The accuracy of the desktop review was limited by the accessibility, scale, and age of the data available.

5.1 The Ellenburger-San Saba Aquifer

The Ellenburger–San Saba Aquifer is a minor aquifer that is found in parts of 15 counties in the Llano Uplift area of Central Texas. It consists of the Tanyard, Gorman, and Honeycut formations of the Ellenburger Group and the San Saba Limestone Member of the Wilberns Formation. The aquifer contains a sequence of limestone and dolomite that crop out in a circular pattern around the Llano Uplift and dip radially into the subsurface away from the center of the uplift to depths of approximately 3,000 feet. Regional block faulting has significantly compartmentalized the aquifer. The maximum thickness of the aquifer is about 2,700 feet. Water is held in fractures, cavities, and solution channels and is commonly under confined conditions. The aquifer is highly permeable in places, as indicated by wells that yield as much as 1,000 gallons per minute and springs that issue from the aquifer, maintaining the base flow of streams in the area (TWDB, 2024a).

Generalized Cross Section



Adapted from unpublished cross section by P. Taylor, 1993, used by Standen and Ruggiero, 2007

Water produced from the aquifer is inherently hard and usually has less than 1,000 milligrams per liter of total dissolved solids. Fresh to slightly saline water extends down to depths of approximately 3,000 feet. Elevated concentrations of radium and radon also occur in the aquifer (TWDB, 2024a).

Most of the groundwater is used for municipal purposes, and the remainder for irrigation and livestock. A large portion of water flowing from San Saba Springs, which is the water supply for the city of San Saba, is thought to be from the Ellenburger–San Saba and Marble Falls aquifers (TWDB, 2024a).

5.2 DRASTIC Classification

Based on the information below, a DRASTIC Index of 121 was calculated for the Site.

Depth to Water Table

Automated groundwater level data is available through the TWDB’s Water Data for Texas website. State well number 5722106 is the closest well completed in the Ellenburger-San Saba aquifer. The well is located at 30.728541°, -98.334708° approximately 0.75 miles northwest of the Site.

Depth to Water Table State Well No. 5715902

Ellenburger-San Saba Aquifer
 Automated Groundwater Level Well

<i>Three Year Average Depth</i>	268.39 ft. bgs
<i>Three Year Lowest Depth (12/6/2022)</i>	290.97 ft. bgs
<i>Three Year Highest Depth (2/22/2024)</i>	263.97 ft. bgs

The total depth of the producing well (#616377) onsite was only completed to 740 ft. bgs. The water level was not measured in this well. However, at the time the well was completed, the water level was measured at 340 ft. bgs. A DRASTIC rating of 1 was utilized.

Net Recharge

Based on an Aquifer Assessment performed by the Groundwater Technical Assistance (GTA) Section of the TWDB, net recharge is approximated as 2% of annual precipitation. The GTA reports 2.5 feet (30 inches) of precipitation annually for Burnet County (Bradley, 2009). Therefore, net recharge equated to 0.6 inches per year which correlates with a DRASTIC rating of 1.

Aquifer Media

The Ellenburger Group contains the most extensive karst development in the region (Stafford, 2018). The typical rating of 10 for Karst Limestone was utilized for the aquifer media rating.

Soil Media

Published Soil Unit Descriptions

(USDA NRCS Web Soil Survey)

<i>Soil Name</i>	<i>Group</i>	<i>Thickness (Inches)</i>	<i>Description</i>	<i>Soil Classification</i>
Eckrant-Rock Outcrop 2 to 20 Percent Slopes	D	4” – 14”	Sand: 42% Silt: 37% Clay: 21% Plasticity Index: 14%	Sand
Hensley Gravelly Loam, 1 to 8 Percent Slopes	D	10” – 20”	Sand: 30% Silt: 31% Clay: 39%	Clay

			Plasticity Index: 27%	
Purves Clay, 1 to 8 Percent Slopes	D	8” – 20”	Sand: 26%	Clay
			Silt: 28%	
			Clay: 46%	
			Plasticity Index: 32%	

According to Seed et al., there is an approximate relationship between the Plasticity Index (PI) and the Inherent Swelling Capacity (ISC) of a unit. Based on the published PI values, these soil units likely possess high to very high ISCs (Seed, 1962) and would be classified as Shrinking and/or Aggregated Clays. However, based on observations of site soil conditions during the field investigation, the soil profile appeared to be less than ten inches thick across a majority of the site. Therefore, site soil media is classified as Thin or Absent which correlates to a DRASTIC rating of 10.

Topography (Slope)

An average value of 4.61 percent slope was calculated for the Site using the USGS 3DEP Elevation 2.5-meter resolution dataset and Global Mapper software. This value correlates with a DRASTIC rating of 5.

Impact of Vadose Zone

The vadose zone is comprised of units similar to the Aquifer Media. The typical rating of 10 for Karst Limestone was utilized.

Hydraulic Conductivity of the Aquifer

Reported Hydraulic Conductivity values for the Ellenburger-San Saba aquifer range from 0.3 – 132.6 feet per day, with a geometric mean of 4.9 feet per day (TWDB, 2016). This value was converted to 36.6 gallons/day/square foot which correlates with a DRASTIC rating of 1.

Total

<u>DRASTIC</u>	<u>Multiplier</u>	<u>Rating</u>	<u>Total</u>
Depth	5	1	5
Recharge	4	1	4
Aquifer	3	10	30
Soil	2	10	20
Topography	1	9	9
Impact	5	10	50
Conductivity	3	1	3
DRASTIC Index			121

6.0 KARST IDENTIFICATION

The field investigation was performed to verify the presence or absence of published data identified during the desktop review and to identify, assess and record any features not previously observed at the site. During the desktop review, several areas were targeted for field investigation. These target areas constituted the primary focus of the field investigation. Other areas of the Site were

observed during field reconnaissance and all karst features encountered were recorded. The results of both the desktop review and the field investigation are provided below.

6.1 Desktop Review

A desktop review of publicly available data revealed two water wells, well #164367 and well #616377. The desktop review did not reveal potential karst features or mapped faults at the Site.

6.2 Field Investigation

A field investigation was conducted on August 29, 2024, to observe surface geology, structure, and potential recharge features.

Surface Geology

Observation of visible bedrock outcrops suggests the geology of the Site is consistent with the mapped surface geology.

Structure

Areas of aligned vegetation identified during the desktop review were observed in the field near drainage areas, however there was insufficient visual evidence to classify a fault.

Karst Features

There were no karst features observed during the field investigation.

Non-karst & Manmade Features

Five (5) non-karst features were observed and recorded during the field investigation. Of these, two are (2) water wells and three (3) are man-made stock ponds. None of these features are categorized as sensitive.

6.3 Feature Descriptions

The feature descriptions below were compiled from a combination of field observations and State of Texas Well Reports accessed via the TWDB Viewer. Copies of the state well reports and select photographs are included in **Attachment C**. Feature sensitivity rating is based on the document “Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones” published by the TCEQ.

S-1 (MB)

Not Sensitive

Feature S-1 is a water well (Tracking #616377) which is categorized as a Manmade Feature in Bedrock. The well was completed to a total depth of 740 ft. bgs with a diameter of 9.875 in. from the surface to the base. The well was completed with a 5 in. diameter PVC casing extending 36 in. above ground level. The well is capped, however there is a 0.25 in. hole in the PVC cap. A 6' x 6' x 6" concrete pad was completed at ground level around the well. The well log made no mention of voids or other open spaces. At the time of completion in August 2022, the static water level was recorded at 360 ft. bgs (TWDB, 2024b). The catchment area is less than 1.6 acres, and the probability of rapid infiltration is low.

S-2 (CD)

Not Sensitive

Feature S-2 is a man-made stock pond, which is categorized as a Non-Karst Closed Depression. This feature measures 180 ft. long, 70 ft. wide, and 4 ft. deep. The feature was

not holding water at the time of the field investigation. However, some vegetation and mud were observed at the bottom of the feature, indicating the previous presence of water. The catchment area is less than 1.6 acres, and the probability of rapid infiltration is low.

S-3 (MB)

Not Sensitive

Feature S-3 is a water well, near the on-site residence, which is categorized as a Manmade Feature in Bedrock. The well was completed to an unknown total depth. The well was completed with a 5 in. diameter PVC casing extending 24 in. above ground level. The well is completed with a metal cover. A water level was not measured at the time of the field investigation. The catchment area is less than 1.6 acres, and the probability of rapid infiltration is low.

S-4 (CD)

Not Sensitive

Feature S-4 is a man-made stock pond, which is categorized as a Non-Karst Closed Depression. This feature measures 400 ft. long, 150 ft. wide, and 8 ft. deep. The feature was holding water at the time of the field investigation. The catchment area is greater than 1.6 acres, and the probability of rapid infiltration is low.

S-5 (CD)

Not Sensitive

Feature S-5 is a man-made stock pond, which is categorized as a Non-Karst Closed Depression. This Feature was 150 ft. long, 90 ft. wide, and 5 ft. deep. The feature was not holding water at the time of the field investigation. However, some vegetation and mud were observed at the bottom of the feature, indicating the previous presence of water. The catchment area is less than 1.6 acres, and the probability of rapid infiltration is low.

7.0 WELL & SPRING INVENTORY

The Well & Spring Inventory was performed using ESRI ArcGIS software and publicly available data sources. Two water well databases were utilized, the TWDB database, and the Texas Submitted Drillers Report (SDR) database. Both were accessed and downloaded via the TWDB website through the Groundwater Data page (TWDB. 2024c). Water wells located within one mile of the Site were extracted and categorized according to their corresponding origin database. A total of 52 wells were identified within one mile of the site. A Well & Spring Inventory Map and summary table is included in **Appendix C**. The breakdown of recorded well uses are summarized in the table below.

**Recorded Well Use Summary
Table**

Domestic	44
Irrigation or Stock	2
Monitor or Test	1
Spring	1
Unknown/Not Provided	2
Public Supply	1
Recreation	1
Total	52

Well 164367 is mapped onsite, however the well address is for a location north of FM 3509. No evidence of this well was observed during the field investigation.

Spring data was accessed and downloaded via the USGS National Water Information System: Mapper (USGS, 2024). Other than the spring reference above, no additional springs were mapped within one mile of the site.

8.0 Discussion

Given the absence of sensitive karst features at the Site and significant depth to groundwater, quarrying activities likely will not impact groundwater quality. A groundwater monitoring plan is not proposed.

9.0 References

- (Bradley, 2009) Bradley, R. G., Texas Water Development Board – Groundwater Technical Assistance Section: GTA Aquifer Assessment 08-03mag.
http://www.twdb.texas.gov/groundwater/docs/AA/AA08-03_MAG.pdf
- (EPA, 1987) Environmental Protection Agency, DRASTIC: A Standardized System for Evaluating Ground Water Pollution Potential Using Hydrogeologic Settings. EPA/600/2-87/035.
- (Seed, 1962) Seed, H.B., Woodward, R.J., and Lundgren, R. (1962), Prediction of swelling potential for compacted clays, Journal of Soil Mechanics and Foundation Division ASCE, Vol. 88 (SM3), pp. 53–87.
- (Stafford, 2018) Stafford, K. W. and Veni, G., 2018. *Hypogene Karst of Texas*: TSS Monograph 3: Karst of the Paleozoic Aquifer System: Llano Region, Texas Pg 99-110.
- (TWDB, 2016) Texas Water Development Board. November 4, 2016. Minor Aquifers of the Llano Uplift Region of Texas (Marble Falls, Ellenburger-San Saba, and Hickory)
http://www.twdb.texas.gov/groundwater/models/gam/llano/Llano_Uplift_Numerical_Model_Report_Final.pdf
- (TWDB, 2024a) Texas Water Development Board. Ellenburger-San Saba Aquifer - Summary.
Accessed: August 30, 2024
<https://www.twdb.texas.gov/groundwater/aquifer/minors/ellenburger-san-saba.asp>
- (TWDB, 2024b) Texas Water Development Board. Water Data for Texas: State Well Number 41724
Accessed: August 30, 2024
<https://www3.twdb.texas.gov/apps/waterdatainteractive//GetReports.aspx?Num=41724&Type=SDR-Well>
- (TWDB, 2024c) Texas Water Development Board. Groundwater Data webpage.
Accessed: August 30, 2024
<http://www.twdb.texas.gov/groundwater/data/index.asp>
- (USGS, 2024) U.S. Geological Survey. National Water Information System: Mapper. Springs
Accessed: September 2024
<https://maps.waterdata.usgs.gov/mapper/?state=tx>

Attachment A

Karst Identification Table

FEATURE IDENTIFICATION TABLE			PROJECT NAME: Burnet Quarry																		
LOCATION			FEATURE CHARACTERISTICS										EVALUATION		PHYSICAL SETTING						
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DEPTH (NO/FT)	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)	TOPOGRAPHY		
						X	Y	Z		10						<40	≥40	<1.6	≥1.6		
S-1	30.425729	-98.182638	MB	30	Cs	0.4	0.5	740	None				X	5	35	X		X		Hillside	
S-2	30.430349	-98.182732	CD	5	Cs	180	70	4	N/A				V, F	5	10	X		X		Hillside	
S-3	30.430417	-98.183168	MB	30	Cs	0.4	0.5	unknown	None				X	5	35	X		X		Hillside	
S-4	30.431832	-98.190706	CD	5	Cs	400	150	8	N/A				X	5	10	X			X	Hillside	
S-5	30.434524	-98.191187	CD	5	Cs	150	90	5	N/A				V, F	5	10	X		X		Hillside	

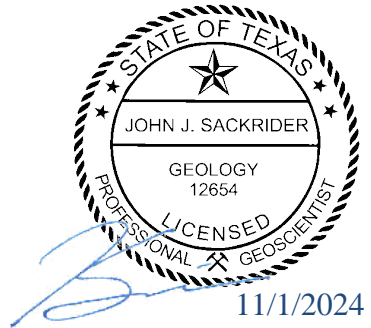
* DATUM: NAD 83

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

Feature scoring based on:
 Instructions for Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 (Rev. 10-01-04)).




Attachment B


Site Geologic Map Site Soils Map


Legend

 Approximate Property Boundary

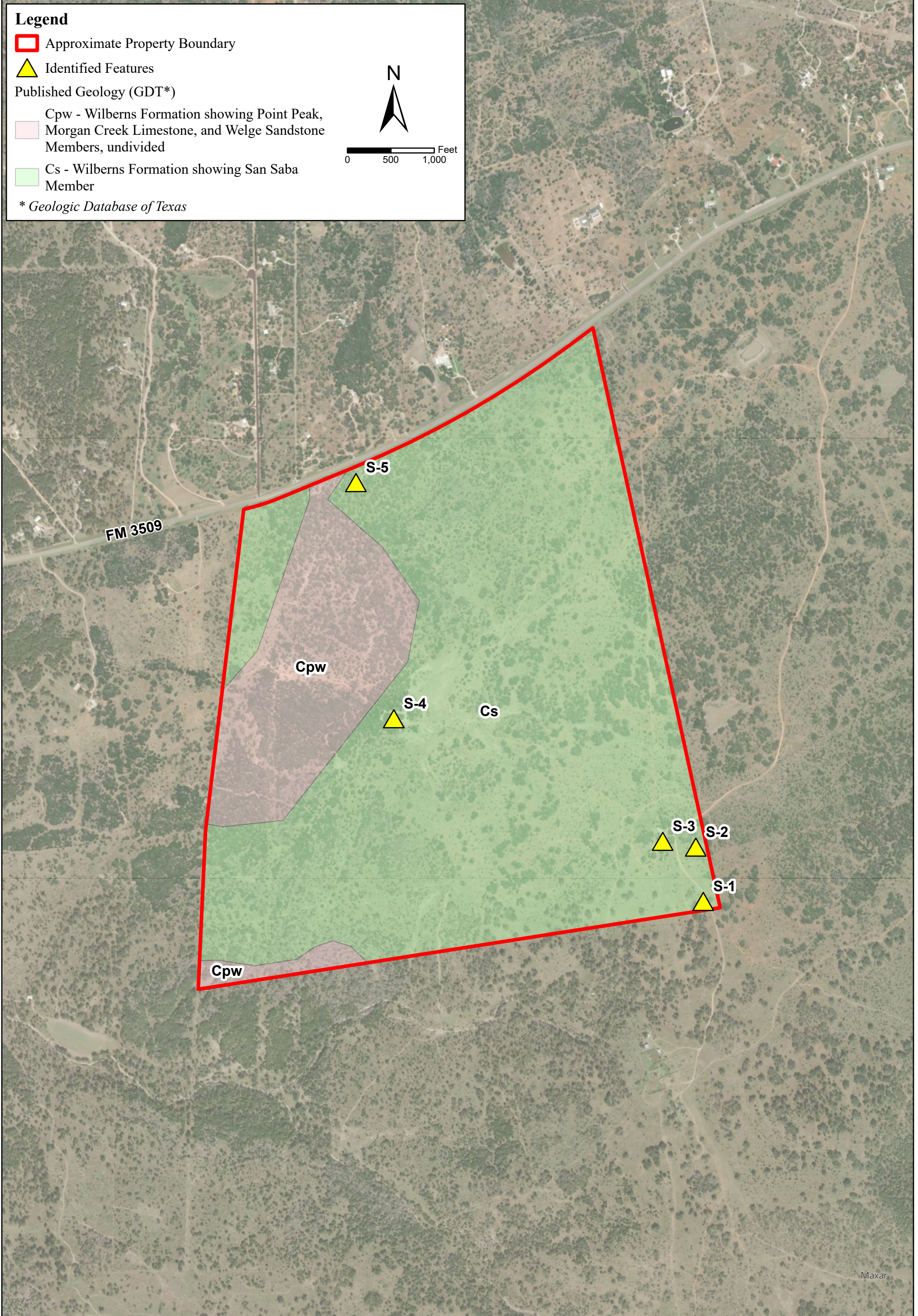
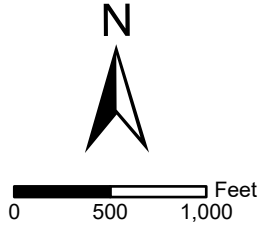
 Identified Features

Published Geology (GDT*)

 Cpw - Wilberns Formation showing Point Peak, Morgan Creek Limestone, and Welge Sandstone Members, undivided

 Cs - Wilberns Formation showing San Saba Member

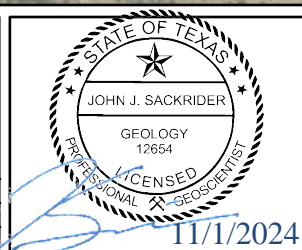
* *Geologic Database of Texas*



Maxar

SHEET NO.: 001 OF 003	IMAGE: ESRI WORLD IMAGERY	
	ISSUE DATE:	10/18/2024
	DRAWN BY:	CPT/JG
	CHECKED BY:	JJS
	SCALE: 1" =	1,000'
JOB NO.:	10853-256	

SITE GEOLOGIC MAP			
BURNET QUARRY ASPHALT INC., LLC BURNET, BURNET COUNTY, TEXAS			
REV.	DESCRIPTION	BY	DATE






WESTWARD

Environmental. Engineering. Natural Resources.


P.O. Box 2205, Boerne, Texas 78006
 (830) 249-8284 Fax: (830) 249-0221
 TBPE REG. NO.: F-4524
 TBPG REG. NO.: 50112


Legend


 Approximate Property Boundary

 Identified Features

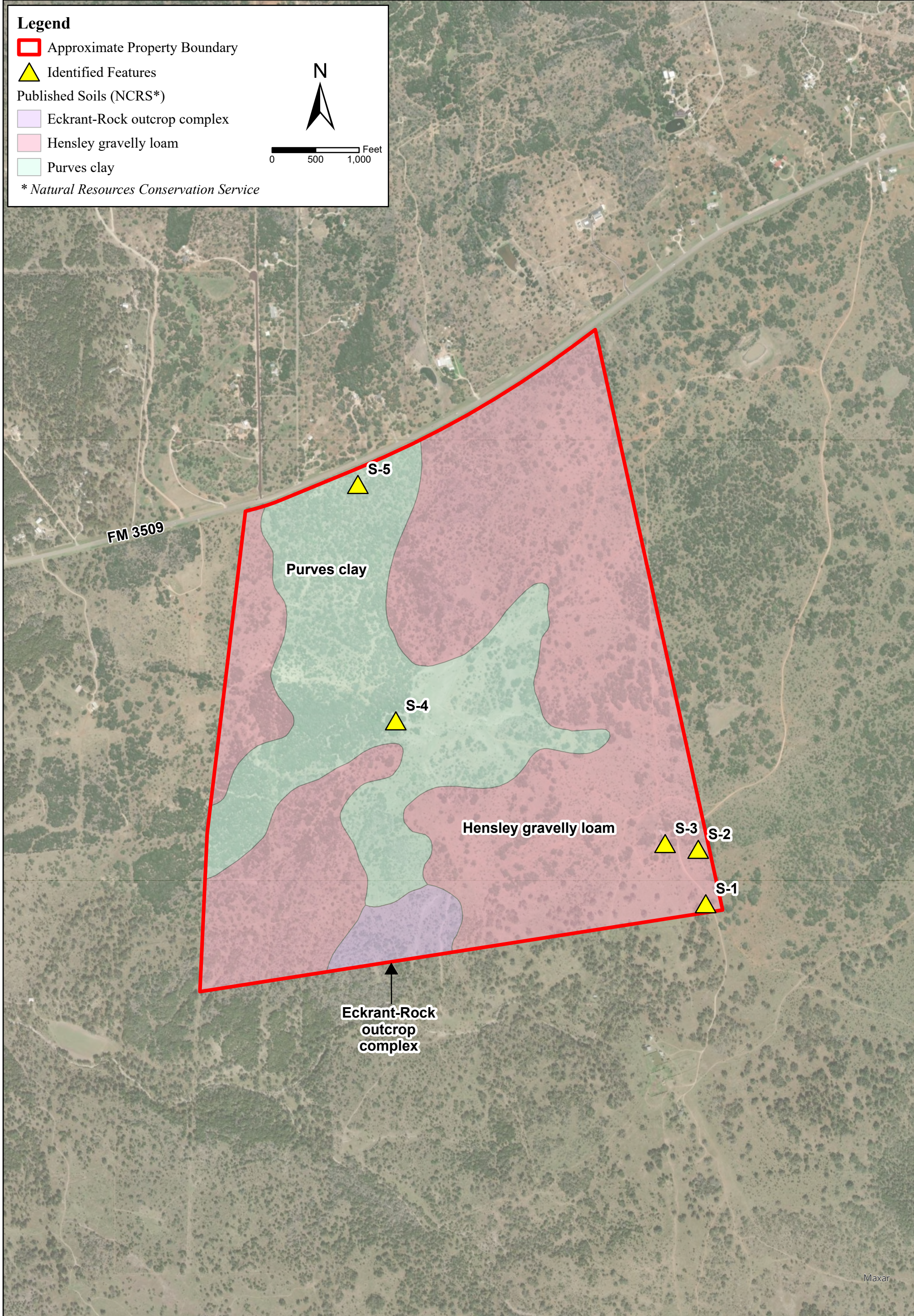
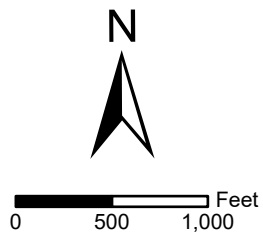
Published Soils (NCRS*)

 Eckrant-Rock outcrop complex

 Hensley gravelly loam

 Purves clay

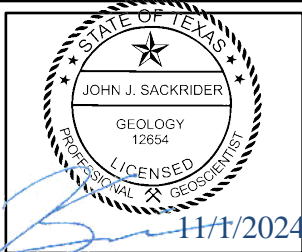
* Natural Resources Conservation Service



Maxar

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	CHECKED BY: JJS
	SCALE: 1" = 1,000'
JOB NO.: 10853-256	

SITE SOILS MAP			
BURNET QUARRY ASPHALT INC., LLC BURNET, BURNET COUNTY, TEXAS			
REV.	DESCRIPTION	BY	DATE




WESTWARD
 Environmental. Engineering. Natural Resources.
 P.O. Box 2205, Boerne, Texas 78006
 (830) 249-8284 Fax: (830) 249-0221
 TBPE REG. NO.: F-4524
 TBPG REG. NO.: 50112

Attachment C

Karst Survey Select Photographs State of Texas Well Report

Karst Survey: Select Photographs

Feature S-1



S-1: Water Well (Capped)



S-1: Well Pad

Feature S-2



S-2: Stock Pond



S-2: Dry Bottom with Mud

Feature S-3



S-3: Water Well



S-3: Water Well with Cover

Feature S-4



S-4: Stock Pond



S-4: Water in Stock Pond

Feature S-5



S-5: Stock Pond



S-5: Stock Pond with Dry Bottom

STATE OF TEXAS WELL REPORT for Tracking #616377

Owner: HVPR4, LLC	Owner Well #: Well #4 & CTGCD#8840
Address: 13240 Pond Springs Rd Austin, TX 78729	Grid #: 57-22-2
Well Location: 3221 FM 3509 Burnet, TX 78611	Latitude: 30° 42' 57.4" N
Well County: Burnet	Longitude: 098° 18' 27.1" W
Number of Wells Drilled: 4	Elevation: 1425 ft. above sea level

Type of Work: New Well	Proposed Use: Domestic
-------------------------------	-------------------------------

Drilling Start Date: **8/12/2022** Drilling End Date: **8/16/2022**

	<i>Diameter (in.)</i>	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>
Borehole:	9.875	0	740

Drilling Method: **Air Rotary**

Borehole Completion: **Filter Packed**

	<i>Top Depth (ft.)</i>	<i>Bottom Depth (ft.)</i>	<i>Filter Material</i>	<i>Size</i>
Filter Pack Intervals:	360	740	Gravel	3/8 (pea)

Annular Seal Data: **No Data**

Seal Method: **Poured**

Sealed By: **Driller**

Distance to Property Line (ft.): **50+**

Distance to Septic Field or other concentrated contamination (ft.): **150+**

Distance to Septic Tank (ft.): **150+**

Method of Verification: **Google Maps**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **340 ft. below land surface on 2022-08-16** Measurement Method: **Logging Sonde**

Packers: **Rubber at 10 ft.**

Type of Pump: **Unknown**

Well Tests: **No Test Data Specified**

Water Quality:	Strata Depth (ft.)	Water Type
	460 - 560	Fresh

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Underground Water Resources, LLC**

**PO Box 429
Devine, TX 78016**

Driller Name: **Michael A Mello**

License Number: **59591**

Apprentice Name: **Wesley S Bolin**

Apprentice Number: **60504**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description
0	3	Top Soil
3	44	White Rock
44	64	Brown Rock
64	124	Grey Rock
124	164	Grey Rock / Clay
164	320	Grey / White Rock
320	340	Red Rock
340	380	Green / Red / White Rock
380	400	Black Rock
400	520	Green / White Rock
520	540	Red / Grey Rock
540	600	Grey /White /Tan Rock
600	700	Red / Grey Rock
700	740	Dark Green / Grey Rock

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
5	Blank	New Plastic (PVC)	SDR 17	0	460
5	Screen	New Plastic (PVC)	SDR 17 0.035	460	640
5	Blank	New Plastic (PVC)	SDR 17	640	740

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

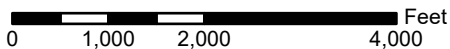
**Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540**

Attachment D

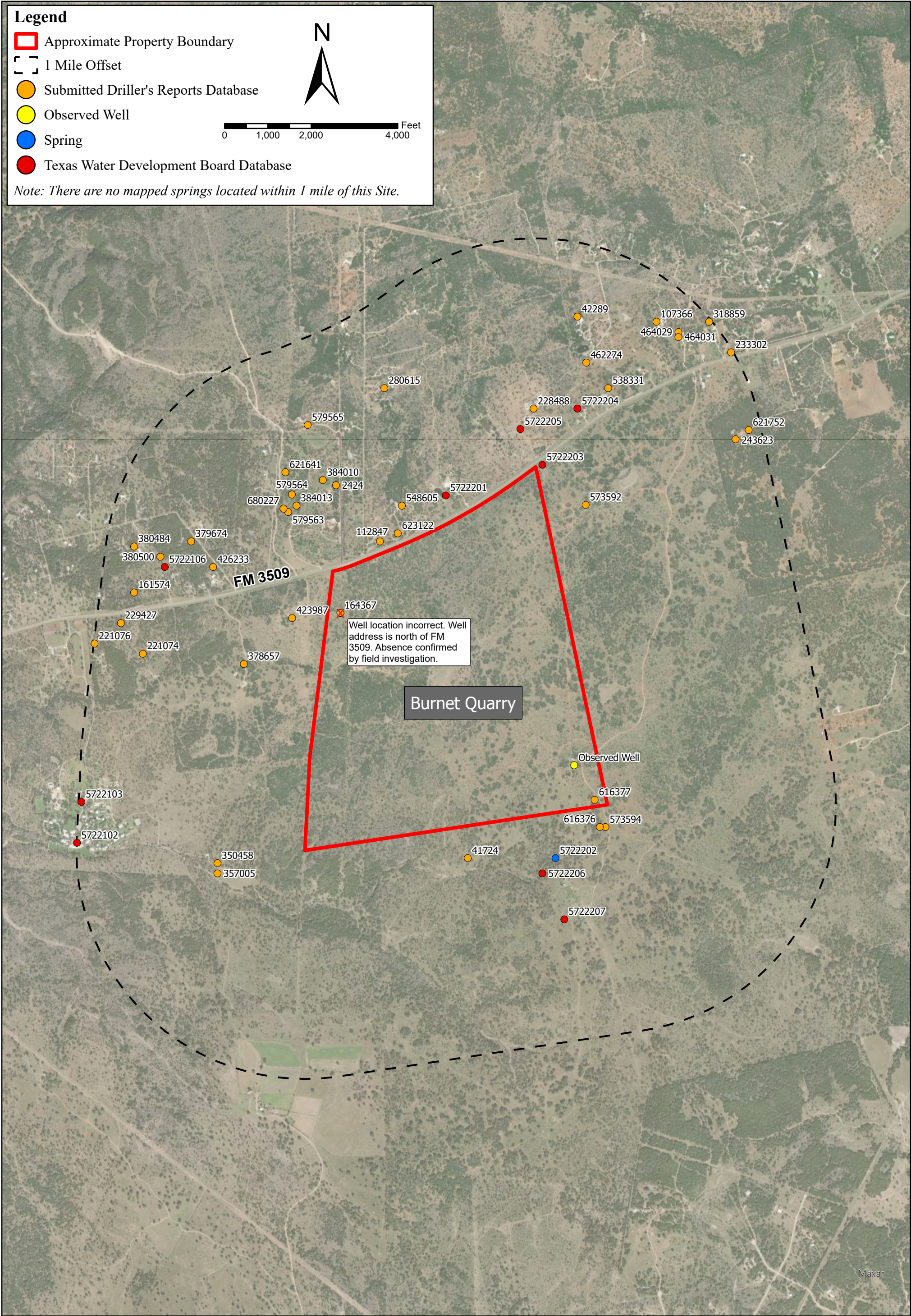
Well & Spring Inventory: Map Well & Spring Inventory: Summary Table

Legend

- Approximate Property Boundary
- 1 Mile Offset
- Submitted Driller's Reports Database
- Observed Well
- Spring
- Texas Water Development Board Database



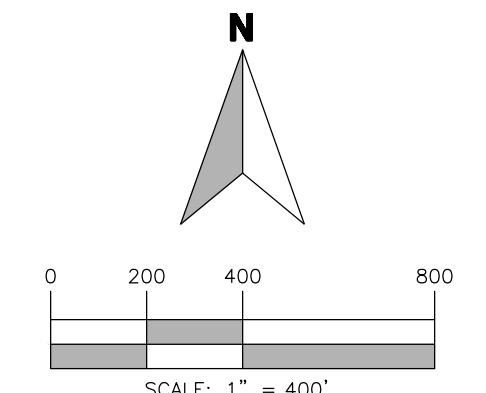
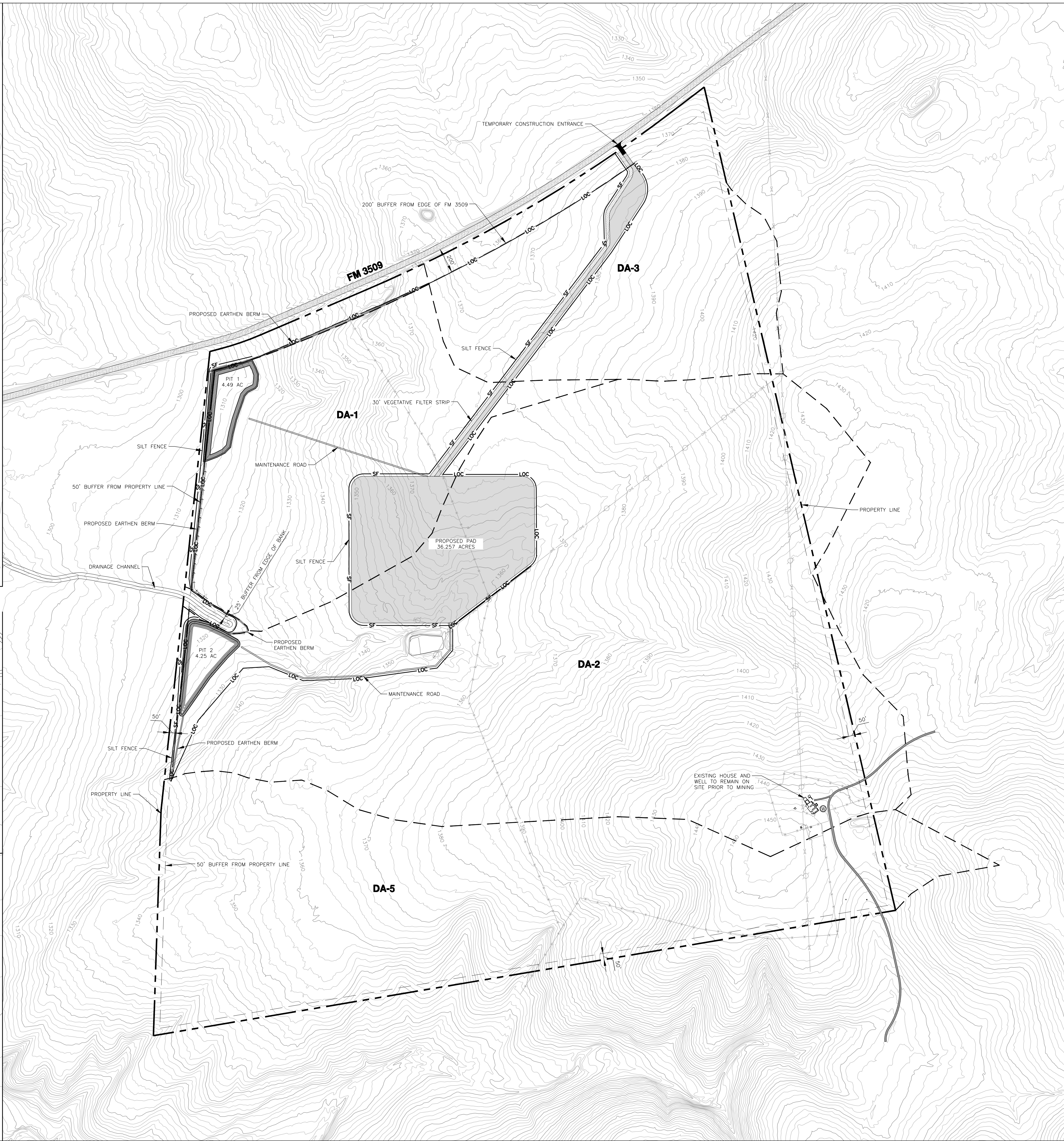
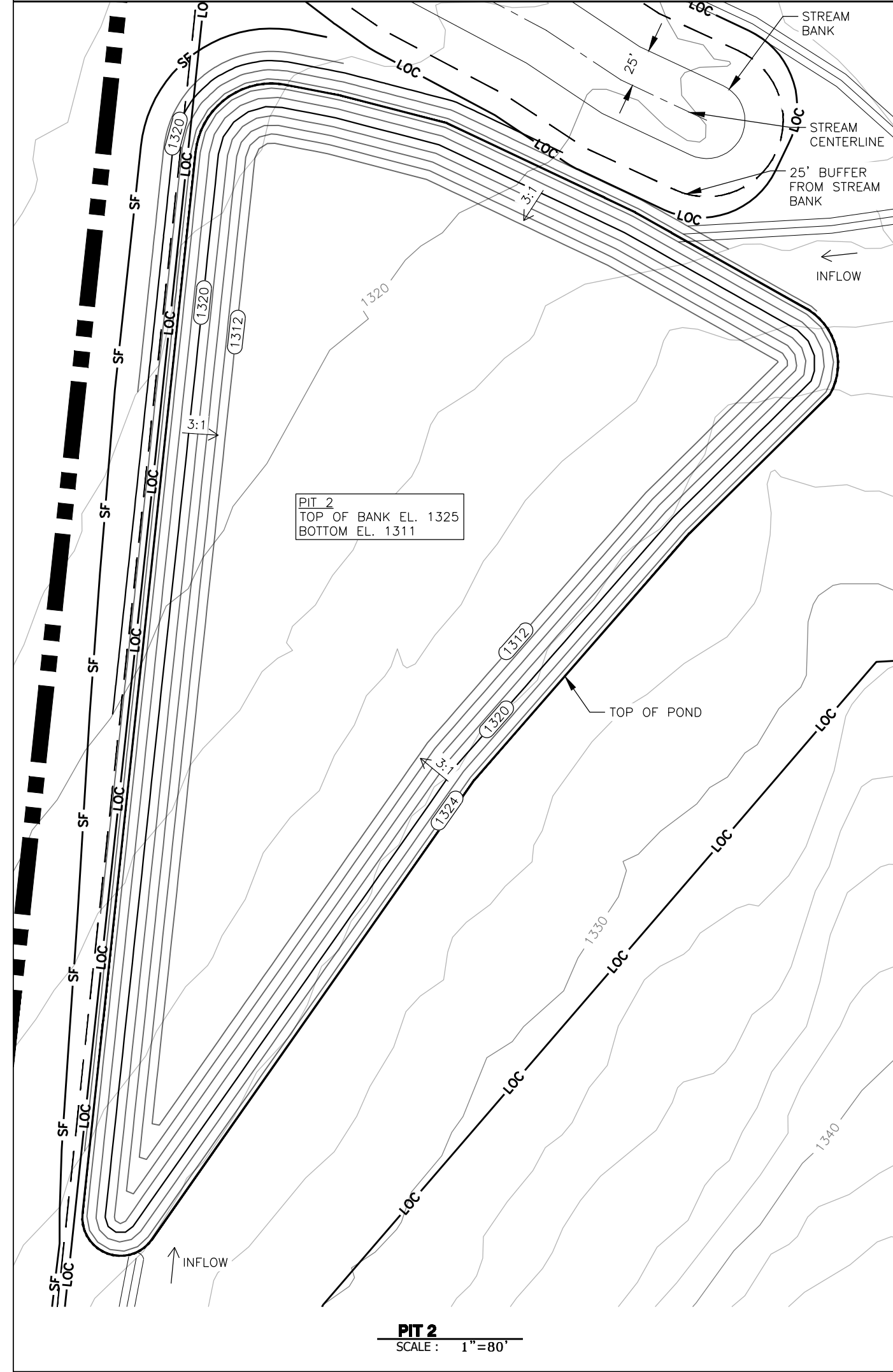
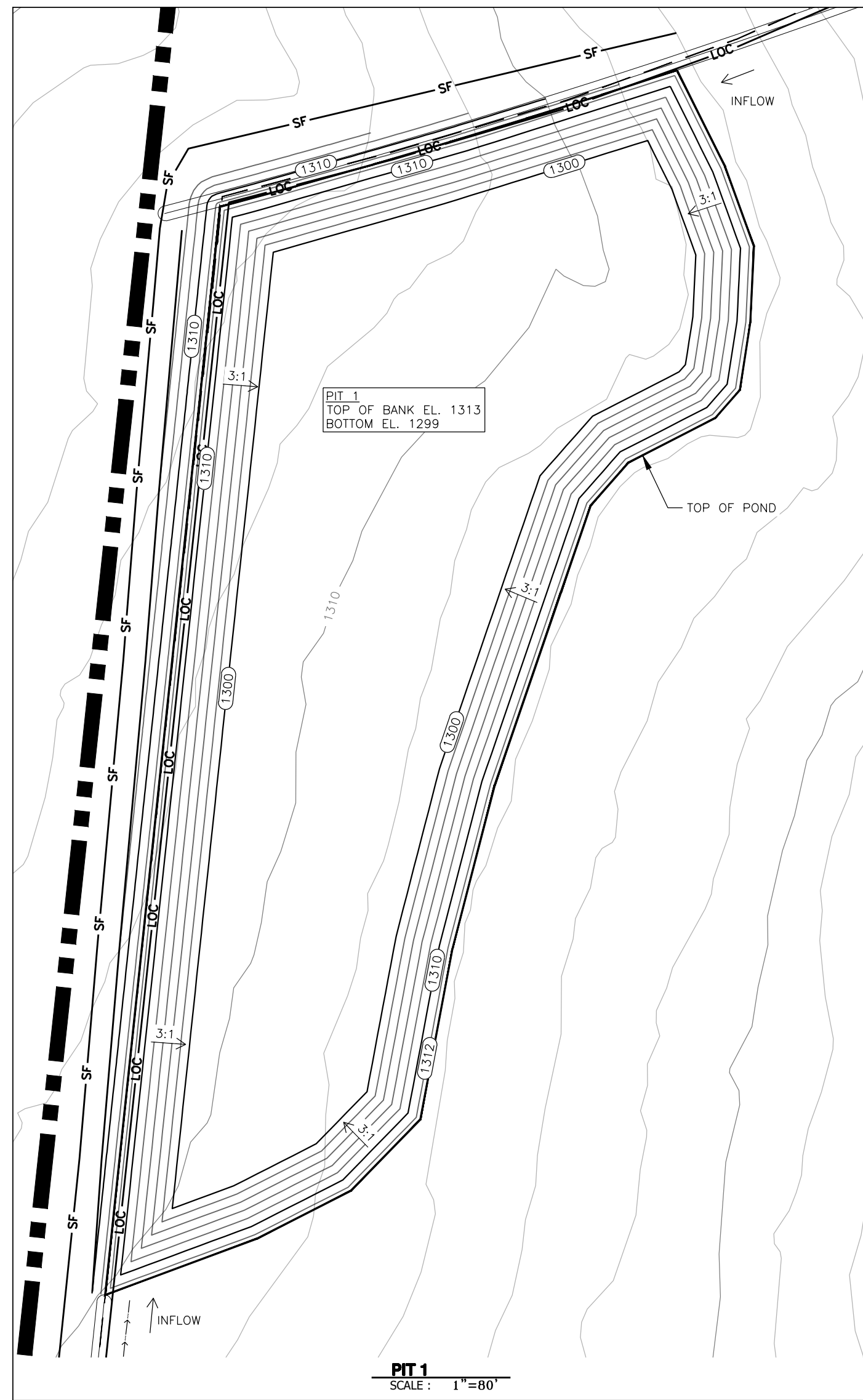
Note: There are no mapped springs located within 1 mile of this Site.



003	SHEET NO.:	IMAGE: ESRI WORLD IMAGERY	WELL & SPRING INVENTORY MAP					
	ISSUE DATE:	10/17/2024	BURNET QUARRY ASPHALT INC., LLC BURNET, BURNET COUNTY, TEXAS					
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	CHECKED BY:	JJS						
	SCALE: 1" =	2,000'						
JOB NO.:	10853-256					P.O. Box 2205, Boerne, Texas 78006 (830) 249-8284 Fax: (830) 249-0221 TBPE REG. NO.: F-4524 TBPG REG. NO.: 50112		

SDRDB & TWDB WELL DATA - WATER WELLS WITHIN 1 MILE OF BURNET QUARRY

<u>WELL ID #</u>	<u>WELL TYPE</u>	<u>PROPOSED USE</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DEPTH</u>	<u>INJURIOUS WATER</u>	<u>PLUGGING REPORT</u>
2424	New Well	Domestic	30.733055	-98.323889	500	no	No Data
41724	New Well	Domestic	30.712778	-98.315556	100	no	No Data
42289	New Well	Domestic	30.742222	-98.308612	558	no	No Data
107366	New Well	Domestic	30.741945	-98.303612	480	no	No Data
112847	New Well	Domestic	30.73000	-98.321111	365	no	No Data
161574	New Well	Test Well	30.727222	-98.336667	205	no	No Data
164367	New Well	Domestic	30.726111	-98.323611	365	no	No Data
221074	New Well	Domestic	30.723889	-98.336111	400	No Data	No Data
221076	New Well	Domestic	30.724444	-98.339167	220	No Data	No Data
228488	New Well	Domestic	30.737222	-98.311389	525	no	No Data
229427	New Well	Domestic	30.725555	-98.337500	160	no	No Data
233302	New Well	Domestic	30.740278	-98.298889	220	no	No Data
243623	New Well	Domestic	30.735556	-98.298611	500	no	No Data
280615	New Well	Domestic	30.738334	-98.320833	600	no	No Data
318859	New Well	Domestic	30.741945	-98.300278	160	no	No Data
350458	New Well	Domestic	30.71250	-98.331389	300	no	No Data
357005	New Well	Domestic	30.711945	-98.331389	200	no	No Data
378657	New Well	Domestic	30.723333	-98.329722	300	no	No Data
379674	New Well	Domestic	30.73000	-98.333055	400	no	No Data
380484	New Well	Domestic	30.729722	-98.336667	340	no	No Data
380500	New Well	Domestic	30.729167	-98.335000	500	no	No Data
384010	New Well	Domestic	30.733334	-98.324722	340	No Data	No Data
384013	New Well	Domestic	30.731944	-98.326389	440	no	No Data
423987	New Well	Domestic	30.725833	-98.326667	420	no	No Data
426233	New Well	Domestic	30.728611	-98.331667	440	no	No Data
462274	New Well	Domestic	30.739722	-98.308056	600	no	No Data
464029	New Well	Domestic	30.741389	-98.302222	140	no	No Data
464031	New Well	Domestic	30.741111	-98.302222	170	no	No Data
538331	New Well	Domestic	30.738333	-98.306667	660	no	No Data
548605	Unknown	Unknown	30.731944	-98.319722	480	no	No Data
573592	New Well	Domestic	30.731989	-98.308095	726	no	No Data
573594	New Well	Domestic	30.714467	-98.306844	736	no	No Data
579563	New Well	Domestic	30.7316	-98.326917	150	no	No Data
579564	New Well	Domestic	30.73255	-98.326683	150	no	No Data
579565	New Well	Domestic	30.736333	-98.325683	300	no	No Data
616377	New Well	Domestic	30.715944	-98.307528	740	no	No Data
616376	New Well	Domestic	30.714472	-98.307194	740	no	No Data
621641	New Well	Domestic	30.733762	-98.327091	440	no	No Data
621752	New Well	Domestic	30.73606	-98.29778	570	no	No Data
623122	New Well	Domestic	30.730436	-98.319979	380	no	No Data
680227	New Well	Domestic	30.731785	-98.327211	110	no	No Data
5722102	Withdrawal of Water	Recreation	30.713612	-98.340278	183	No Data	No Data
5722103	Withdrawal of Water	Public Supply	30.715833	-98.340000	185	No Data	No Data
5722106	Withdrawal of Water	No Data	30.728611	-98.334722	450	No Data	No Data
5722201	Withdrawal of Water	Domestic	30.73250	-98.316944	350	No Data	No Data
5722202	Spring	Unused	30.712778	-98.310001	0	No Data	No Data
5722203	Withdrawal of Water	Stock	30.734167	-98.310834	240	No Data	No Data
5722204	Withdrawal of Water	Domestic	30.737222	-98.308612	65	No Data	No Data
5722205	Withdrawal of Water	Stock	30.736111	-98.312223	300	No Data	No Data
5722206	Withdrawal of Water	Domestic	30.711945	-98.310834	100	No Data	No Data
5722207	Withdrawal of Water	Domestic	30.709445	-98.309445	650	No Data	No Data
Observed Well	No Data	Domestic	30.717828	-98.3088197	No Data	No Data	No Data



LEGEND

- PROPERTY LINE
- - - EXISTING FENCELINE
- - - EXISTING OVERHEAD ELECTRIC
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- DRAINAGE AREAS
- DITCH-SWALE
- LIMITS OF CONSTRUCTION
- SILT FENCE
- BERM (TOP & TOE OF SLOPE)
- STOCKPILE
- WATER WELL
- ASPHALT AREA
- BASE AREA
- VEGETATIVE FILTER STRIP
- TEMPORARY CONSTRUCTION ENTRANCE

NOTE:

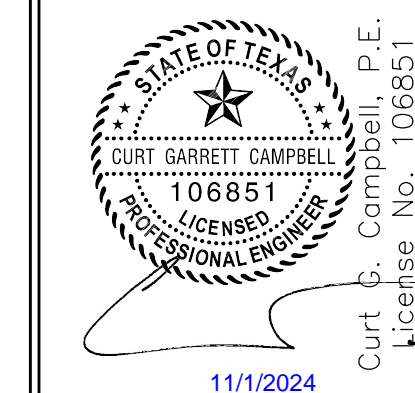
- NO EXCAVATION IS PROPOSED IN THE 50' BUFFER FROM THE PROPERTY LINE OR THE 200' BUFFER FROM FM 3509.
- 50' PROPERTY LINE SETBACK DUE TO TEXAS PIT SAFETY RULES FOR SLOPE STABILITY.
- NORTH PROPERTY LINE SETBACK (200' MEASURED FROM EDGE OF PAVEMENT) IS DUE TO TXDOT PIT SAFETY RULE FOR QUARRIES ALONG PUBLIC ROADWAYS.

IMAGE:	N/A
ISSUE DATE:	11/01/2024
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE:	1" = 400'
JOB NO.:	10853-256

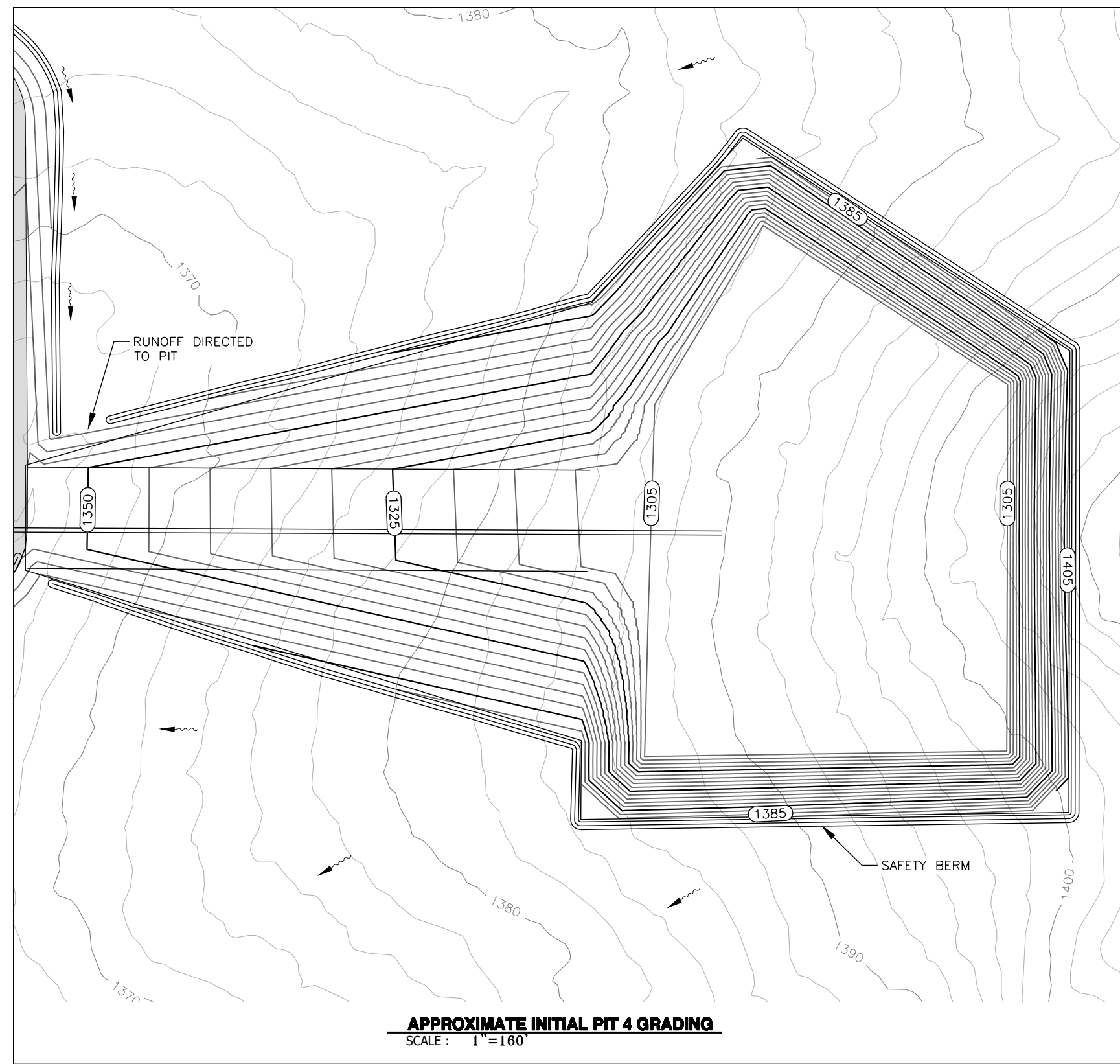
SHEET NO.:
C.1
OF C.4

WESTWARD
Environmental Engineering, Natural Resources,
P.O. Box 2205 Boerne, Texas 78006
(830) 249-8284 Fax: (830) 249-0221
TBPE REG. NO.: F-4524
TBPE REG. NO.: 50112

REV.	DESCRIPTION	BY	DATE

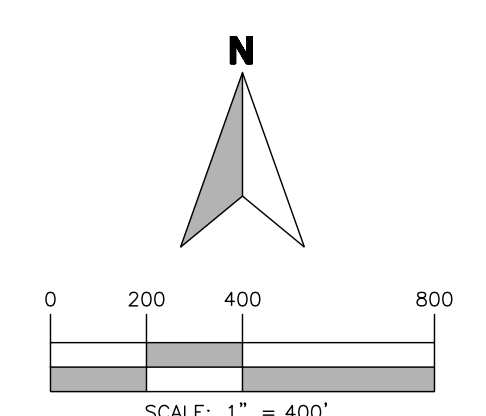
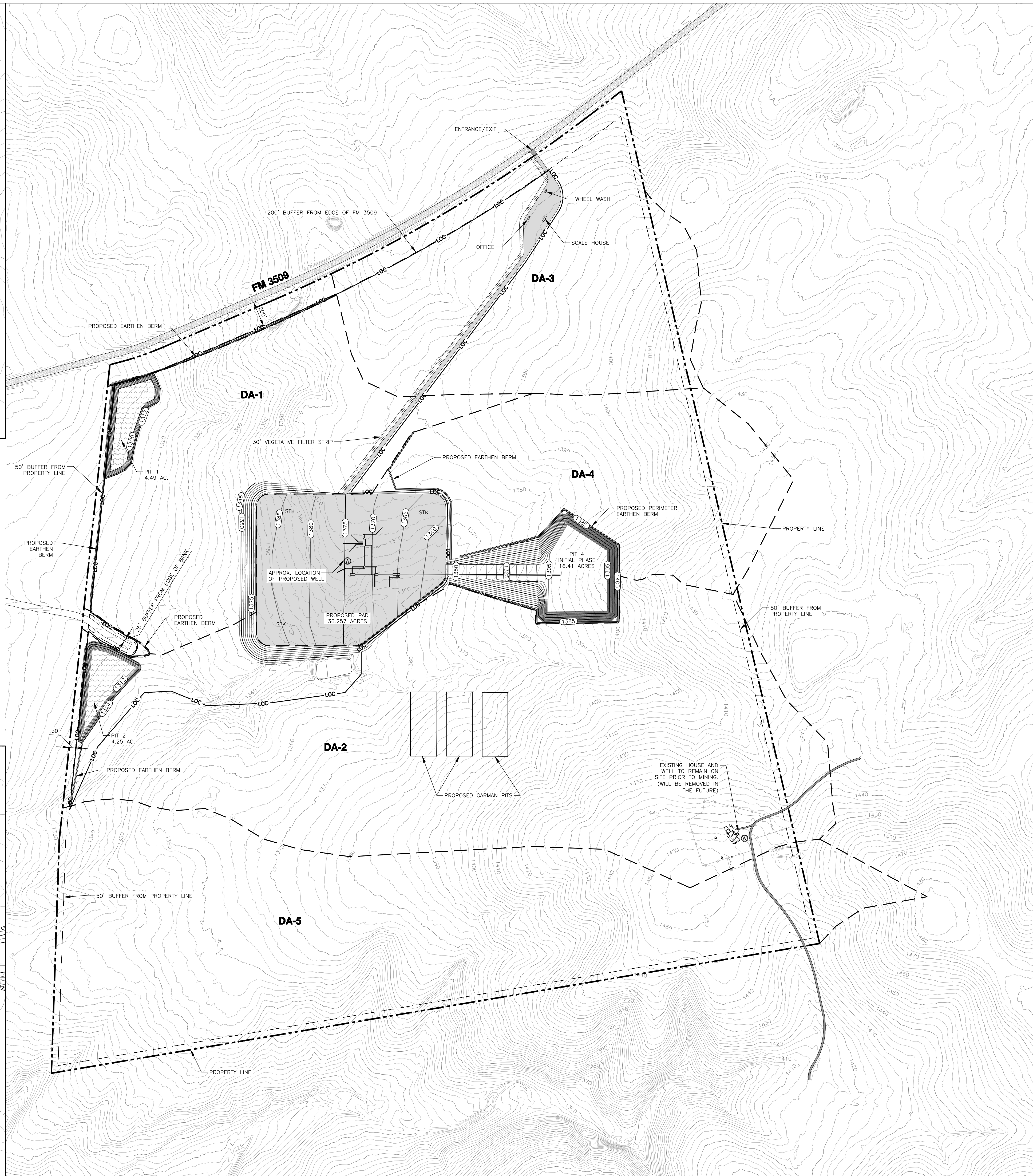
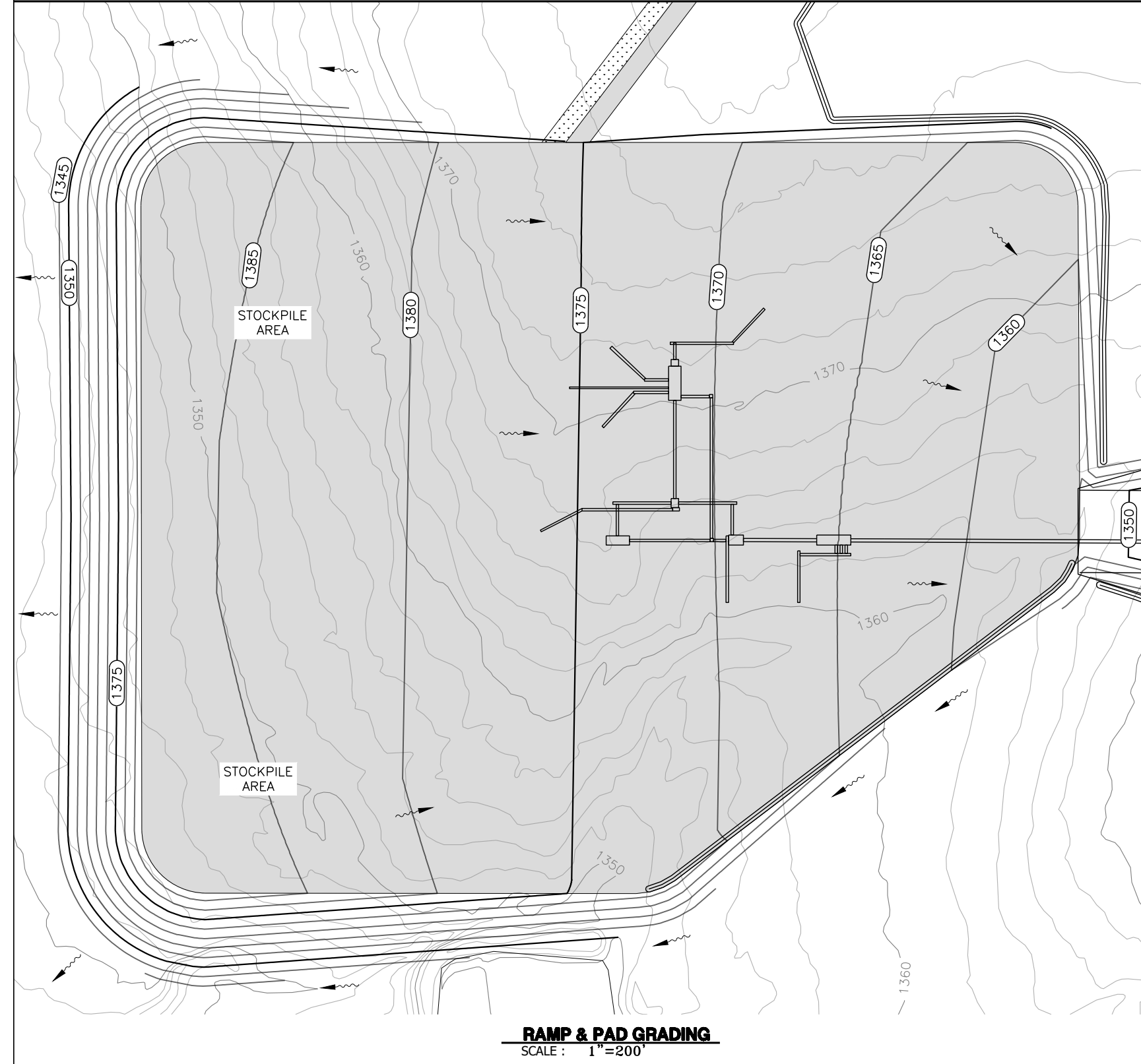


EROSION & SEDIMENTATION CONTROL PLAN
LCRA PERMITTING - BURNET QUARRY
ASPHALT INC.
3221 FM 3509, BURNET, TX 78611



NOTE:

- NO EXCAVATION IS PROPOSED IN THE 50' BUFFER FROM THE PROPERTY LINE OR THE 200' BUFFER FROM FM 3509.
- 50' PROPERTY LINE SETBACK DUE TO TEXAS PIT SAFETY RULES FOR SLOPE STABILITY.
- NORTH PROPERTY LINE SETBACK (200' MEASURED FROM EDGE OF PAVEMENT) IS DUE TO TXDOT PIT SAFETY RULE FOR QUARRIES ALONG PUBLIC ROADWAYS.
- ACTUAL PIT SLOPE WILL VARY AND WILL BE BASED ON HIGH WALL STABILITY OF IN PLACE MATERIAL.



LEGEND

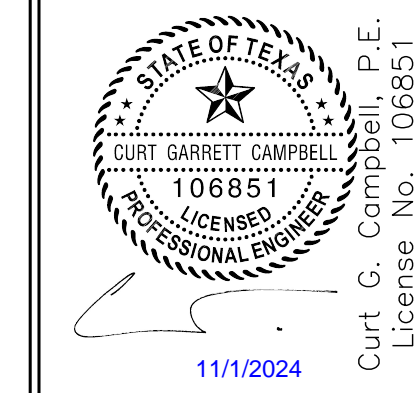
---	PROPERTY LINE
---	EXISTING FENCELINE
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	DRAINAGE AREAS
---	LIMITS OF CONSTRUCTION
---	SILT FENCE
---	BERM (TOP & TOE OF SLOPE)
---	STK
---	WATER WELL
---	FLOW ARROW
---	ASPHALT AREA
---	BASE AREA
---	VEGETATIVE FILTER STRIP

IMAGE:	N/A
ISSUE DATE:	11/01/2024
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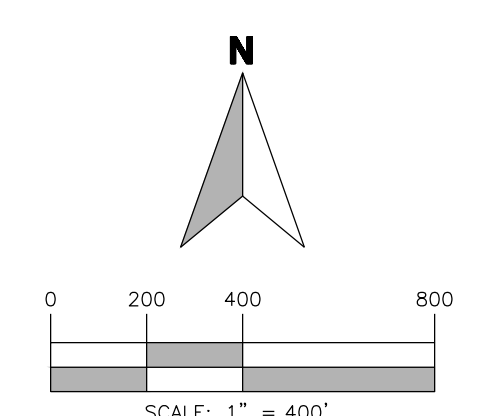
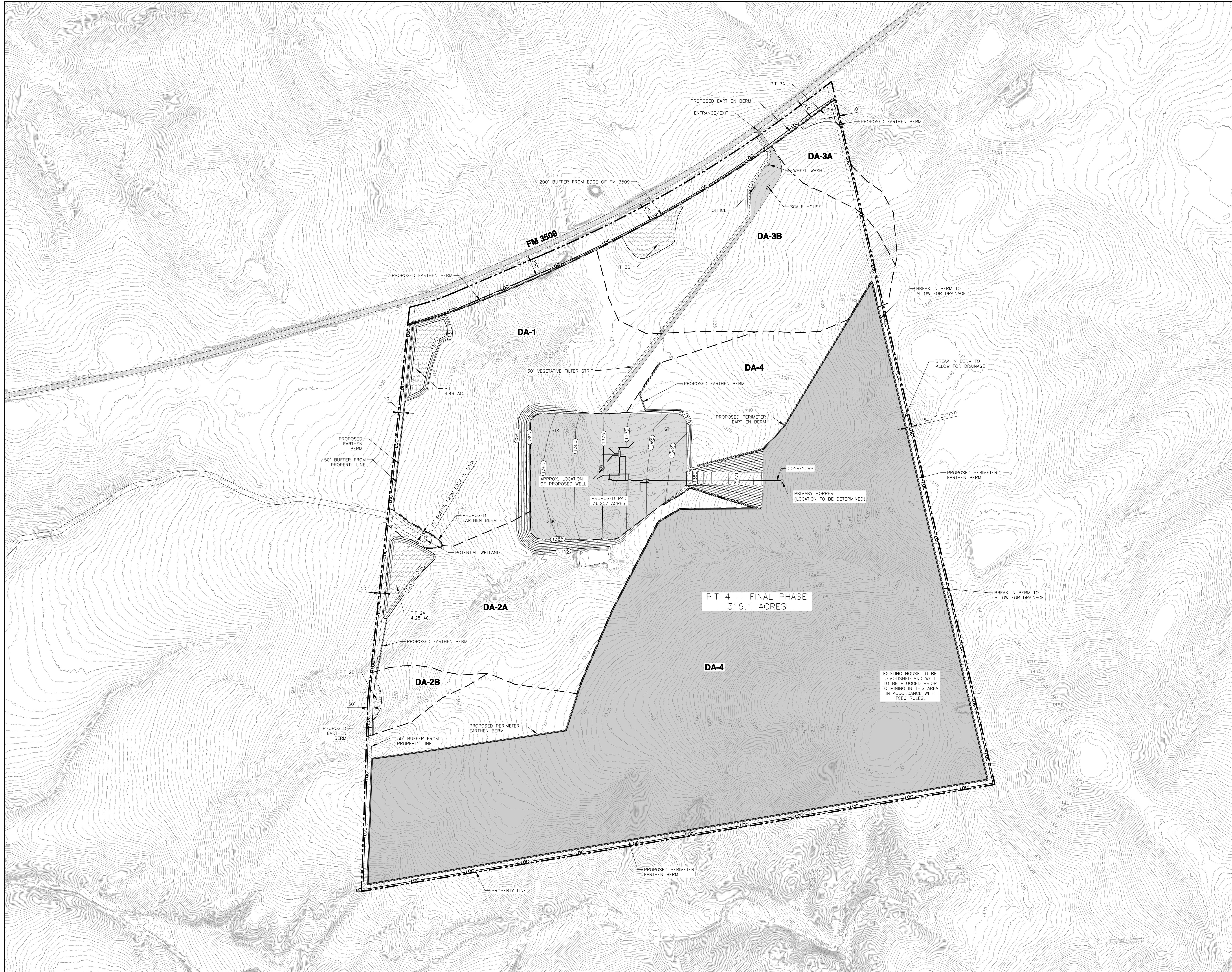
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WESTWARD
Environmental Engineering, Natural Resources,
P.O. Box 2205 Boerne, Texas 78006
(830) 249-8284 Fax: (830) 249-0221
TBP REG. NO.: F-4524
TBP REG. NO.: 50112

REV.	DESCRIPTION	DATE



INITIAL CONDITIONS
LCRA PERMITTING - BURNET QUARRY
ASPHALT INC.
3221 FM 3509, BURNET, TX 78611



LEGEND

- PROPERTY LINE
- EXISTING FENCELINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- DRAINAGE AREAS
- LIMITS OF CONSTRUCTION
- SILT FENCE
- BERM (TOP & TOE OF SLOPE)
- STOCKPILE
- WATER WELL
- ASPHALT AREA
- BASE AREA
- VEGETATIVE FILTER STRIP

- NOTES:**
- PROPOSED RETENTION PITS 3A, 3B, & 2B NOT NECESSARY AT START OF CONSTRUCTION.
 - VEGETATIVE FILTER STRIP WILL BE SUFFICIENT UNLESS IMPERVIOUS COVER IS ADDED ON DOWN SLOPE OF ROAD OR WITHIN THEIR RESPECTIVE DRAINAGE AREAS.
 - THE SAME IS TRUE FOR DRAINAGE AREA 2B. UNLESS IMPERVIOUS COVER IS ADDED WITHIN THE DRAINAGE AREA THE RETENTION PIT IS NOT NECESSARY FOR THE TIME BEING.
 - THE PURPOSE OF THESE PITS IS TO INCLUDE THEM IN THE PLAN JUST IN CASE ADDITIONAL IMPERVIOUS SURFACE IS ADDED IN THE FUTURE. THERE IS NO PLAN TO ADD IMPERVIOUS SURFACE AT THIS TIME. ABOVE WHAT IS SHOWN, THIS CONSERVATIVE DESIGN APPROACH INTENDS TO INFORM THE OPERATOR THAT IF THEY DO WORK IN OTHER AREAS IN THE FUTURE ADDITIONAL BMPs WILL BECOME NECESSARY.
 - NORTH PROPERTY LINE SETBACK (200' MEASURED FROM EDGE OF PAVEMENT) IS DUE TO TxDOT PIT SAFETY RULE FOR QUARRIES ALONG PUBLIC ROADWAYS.
 - BERM IS ONLY NECESSARY ALONG EDGE OF "PIT" AT OR WITHIN 200' OF THE ROADWAY.
 - 50' PROPERTY LINE SETBACK DUE TO TEXAS PIT SAFETY RULES FOR SLOPE STABILITY.
 - PAD DESIGNED TO DRAIN BACK TO MAIN PIT DEVELOPMENT.
 - WHILE IN EARLY DEVELOPMENT PAD WILL DRAIN TO SOUTHWEST CORNER AND FLOW INTO RETENTION PIT 2A.
 - VEGETATIVE FILTER STRIP TO BE REMOVED AND REPLACED BY RETENTION PIT 3B IF IMPERVIOUS COVER IS ADDED TO DRAINAGE AREA 1B.
 - PERIMETER BERMS PROPOSED AROUND MAIN PIT DEVELOPMENT.
 - 25' BUFFER ZONE REQUIRED FROM TOP OF THE CHANNEL BANK WHERE THE LIMITS OF THE 330 ACRE CONTRIBUTING DRAINAGE AREA ENDS. (LCRA HWLD 5.2(c)(i))

IMAGE:	N/A
ISSUE DATE:	11/01/2024
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SHEET NO.:
C.3
OF C.4

WESTWARD
Environmental Engineering, Natural Resources,
P.O. Box 2205 Boerne, Texas 78006
(830) 249-8284 Fax: (830) 249-0221
TBP REG. NO.: F-4524
TBP REG. NO.: 50112

REV.	DATE	DESCRIPTION

STATE OF TEXAS
Curt G. Campbell, P.E.
Professional Engineer
License No. 1106851
11/1/2024

FINAL CONDITIONS
LCRA PERMITTING - BURNET QUARRY
ASPHALT, INC.
3221 FM 3509, BURNET, TX 78611

PROPOSED SEQUENCE OF CONSTRUCTION

THE GENERAL SEQUENCE OF CONSTRUCTION CONSISTS OF ESTABLISHING THE CONSTRUCTION ENTRANCE, CLEARING VEGETATION AND MULCHING IT IN PLACE TO PROVIDE STABILIZATION OF ANY DISTURBED AREAS, INSTALLATION OF TEMPORARY BEST MANAGEMENT PRACTICES (BMPs), AND SIMULTANEOUS GRADING AND FOUNDATION LAYING WHILE PERMANENT BMPs ARE INSTALLED. CONSTRUCTION ACTIVITIES WILL MOST LIKELY BEGIN IN THE PROPOSED PLANT AREA (A) FIRST, FOLLOWED BY INITIATING THE INITIAL PIT AREA.

A – PLANT AREA: WORK WILL BEGIN WITHIN THE IMMEDIATE AREA OF THE PROPOSED PLANT LOCATION AND EXPAND OUTWARD AT NO MORE THAN FIVE ACRES WITHIN ONE DRAINAGE AREA AT A TIME UNTIL PERMANENT BMPs HAVE BEEN CONSTRUCTED SUFFICIENTLY TO ACT AS SEDIMENTATION BASINS. SILT FENCE AND ROCK FILTER DAMS MAY BE USED AS TEMPORARY BMPs FOR INITIAL WORK AREAS. TREES AND BRUSH WILL BE CLEARED AND MULCHED IN PLACE PROVIDING STABILIZATION FOR DISTURBED AREAS. TEMPORARY BMPs WILL BE INSTALLED POND THREE THROUGH SIX WILL BE ROUGHED IN AND UTILIZED AS TEMPORARY SEDIMENTATION BASINS. THEN DRILLING AND BLASTING WILL COMMENCE TO BEGON EXCAVATION OF THE PLANT AREA. TEMPORARY BERMS MAY BE USED TO DIRECT RUNOFF FROM DISTURBED AREAS TO SEDIMENTATION BASINS DURING CONSTRUCTION AS NEEDED TO ENSURE RUNOFF FROM DISTURBED AREAS DOES NOT LEAVE UNTREATED. CUT AND FILL ACTIVITIES WILL PREPARE THE PLANT PAD AND PROVIDE MATERIALS FOR THE CONSTRUCTION OF THE PROPOSED EARTHEN BERMS AND FINAL PONDS. AFTER CONSTRUCTION OF NECESSARY BERMS AND PONDS (INCLUDING THEIR OUTFALL STRUCTURES) IS COMPLETED, THE PLANT EQUIPMENT WILL BE BROUGHT IN AND ERECTED, AND CONSTRUCTION WILL BEGIN ON THE CREEK CROSSING. NEXT, EXCAVATION WILL BEGIN FOR THE FRESHWATER/PROCESS WATER POND, AND UPON COMPLETION OF THE PLANT AND FRESHWATER POND CONSTRUCTION, CRUSHING ACTIVITIES WILL COMMENCE. LATER, EXCAVATION WILL BEGIN IN THE ENTRANCE AREA INCLUDING A TEMPORARY BUILDING PAD.

B – QUARRY PIT WORK WILL BEGIN IN THE PROPOSED INITIAL PIT AREA AFTER THE WORK IN THE PLANT AREA HAS STARTED. CLEARING AND MULCHING WILL TAKE PLACE TO STABILIZE THE CLEARED AREAS, FOLLOWED BY EXCAVATION TO A DEPTH OF AT LEAST 2.5 FEET AT NO MORE THAN TEN ACRES OF DISTURBANCE. ONCE THE INITIAL PIT EXCAVATION IS COMPLETED, MULCH WILL BE REMOVED FROM AREAS UPGRADIENT OF THE INITIAL PIT AREA AND THE PIT EXCAVATION WILL BE EXPANDED. FOR PIT EXPANSION AREAS THAT DO NOT NATURALLY DRAIN TO THE PIT NO MORE THAN FIVE ACRES WILL BE DISTURBED AT A TIME FOR AREAS THAT NATURALLY DRAIN TO THE PIT THE PERIMETER BERM WILL BE EXPANDED AND ANY RUNOFF WILL BE DIRECTED INTO THE PIT. THE INITIAL PIT WILL RETAIN TO YEAR 24-HOUR STORM RUNOFF FROM ALL OF SUB-BASIN DA-04, APPROXIMATELY 16.41 ACRES OF DISTURBANCE, WHICH DRAINS TO THE PIT. MATERIALS EXCAVATED WILL BE USED FOR TEMPORARY BERMS SURROUNDING THE INITIAL PIT AREA.

RESTORATION OF THE SITE WILL INCLUDE REMOVAL OF BUILDINGS AND STRUCTURES SUCH AS THE SCALE, OFFICE, PROCESSING PLANT, AND THEIR ASSOCIATED FOUNDATION MATERIALS, WHERE PRACTICABLE. THE SITE WILL BE REVEGETATED, AS APPROPRIATE. MULCH CREATED AND STORED FROM INITIAL CLEARING ACTIVITIES CAN BE SPREAD ACROSS THE DISTURBED AREAS TO PROVIDE STABILIZATION. ROADWAYS WILL REMAIN IN PLACE THROUGHOUT THE SITE TO ALLOW ACCESS FOR MONITORING PURPOSES.

ROAD CROSSINGS

A VARIETY OF TECHNIQUES MAY BE USED DEPENDING ON LOCAL TOPOGRAPHY AND SOIL CONDITIONS. THESE INCLUDE FORD CROSSINGS, CULVERT CROSSINGS, DRAGLINE MATS, AND BRIDGES.

GENERAL CONSIDERATIONS

CONSTRUCT TEMPORARY CROSSINGS AT PROPOSED ROADWAY CROSSINGS AND ANY ADDITIONAL CROSSING POINTS. MINIMIZE THE NUMBER OF ADDITIONAL CROSSINGS TO REDUCE IMPACT TO CREEKS.

WHERE A STREAM CROSSING IS REQUIRED, SELECT A CROSSING SITE WITH THESE FEATURES:
1. STRAIGHT AND NARROW CREEK CHANNEL WITH HIGH BANKS;
2. STABLE CREEK BANKS THAT PROVIDE SOLID FOUNDATION FOR A CROSSING;
3. MINIMAL ELEVATION CHANGES (0-10% PREFERRED) ON ROAD/TRAIL LEADING TO CROSSING.

INSTALLATION

- KEEP HEAVY EQUIPMENT OUT OF CREEK.
- CONSTRUCT A SWALE OR BERM ACROSS THE APPROACH TO THE CROSSING ON BOTH SIDES OF THE CROSSING. OTHER WATER DIVERSION DEVICES (ROAD BASED DIPS, WATER BARS, ETC.) SHOULD BE USED ON LONG APPROACHES TO MINIMIZE THE AMOUNT OF WATER FLOWING TO THE CROSSING.

STABILIZE EXPOSED SOIL AROUND THE CROSSING WITH MULCH, TEMPORARY SEEDING AND/OR EROSION CONTROL BLANKETS/MATTING.

MAINTENANCE

- KEEP CROSSING SURFACE FREE OF SOIL AND DEBRIS THAT COULD ENTER STREAM.
- CHECK CROSSING COMPONENTS WEEKLY AND AFTER RAINFALL TO MAINTAIN STRENGTH AND INTEGRITY.
- REMOVE LARGE BRANCHES OR OTHER FLOW OBSTRUCTIONS THAT COULD IMPAIR THE FUNCTION OF THE CROSSING OR CAUSE A FAILURE OF THE CROSSING.

REMOVAL & RESTORATION

- CLEAN OFF CROSSING SURFACE, KEEP DEBRIS OUT OF THE CREEK CHANNEL.
- CAREFULLY REMOVE CROSSING MATERIALS, MINIMIZING DISTURBANCE TO THE CREEK CHANNEL.
- PERMANENTLY STABILIZE DISTURBED PORTIONS OF CREEK BANK AND APPROACHES WITH PERENNIAL GRASSES, EROSION CONTROL BLANKETS/MATTING AND/OR RIP RAP.
- LEAVE APPROPRIATE WATER DIVERSION STRUCTURES IN PLACE ON BOTH SIDES OF CREEK.

CREEK CROSSINGS

CREEK CROSSINGS SHOULD BE MADE PERPENDICULAR TO THE CREEK FLOWLINE.

IN-STREAM CONTROLS SHOULD ONLY BE USED AS A SECONDARY BMP. STORMWATER RUNOFF APPROACHING A CREEK CROSSING SHOULD BE DIVERTED TO A SEDIMENT TRAPPING BMP BEFORE IT REACHES THE CREEK. IF BASEFLOW IS PRESENT, LCRA PERSONNEL SHOULD BE CONSULTED, AS IT MAY BE NECESSARY TO DIVERT OR PUMP WATER AROUND THE CONSTRUCTION AREA.

EVERY EFFORT SHOULD BE MADE TO KEEP THE ZONE OF IMMEDIATE CONSTRUCTION FREE OF SURFACE AND GROUND WATER. FOR CONSTRUCTION IN THE CREEK CHANNEL, A PIPE OF ADEQUATE SIZE TO DIVERT NORMAL STREAM FLOW SHOULD BE PROVIDED AROUND THE CONSTRUCTION AREA. DIVERSION MAY BE BY PUMPING OR GRAVITY FLOW USING TEMPORARY DAMS.

WHERE WATER MUST BE PUMPED FROM THE CONSTRUCTION ZONE, DISCHARGES SHOULD BE IN A MANNER THAT WILL NOT CAUSE SCOURING OR EROSION. ALL DISCHARGES SHALL BE ON THE UPSTREAM OR UPSLOPE SIDE OF EMPLOYED EROSION CONTROL STRUCTURES. IF DISCHARGES ARE NECESSARY IN EASILY ERODIBLE AREAS, A STABILIZED, ENERGY-DISSIPATING DISCHARGE APRON SHALL BE CONSTRUCTED OF RIPRAP WITH MINIMUM STONE DIAMETER OF 6 INCHES AND MINIMUM DEPTH OF 12 INCHES. SIZE OF APRON IN LINEAR DIMENSIONS SHALL BE APPROXIMATELY 10 TIMES THE DIAMETER OF THE DISCHARGE PIPE.

NOTES FOR CONSTRUCTION IN CREEKS

SCHEDULE WORK WHEN A MINIMUM OF 30 DAYS OF DRY WEATHER ARE FORECAST. DETAILED OR DETAILED FLOW PRIOR TO COMMENCING WORK WITHIN CREEK CHANNELS. CONTACT LCRA FOR INSPECTION OF DETAILED/CONSTRUCTION SYSTEM PRIOR TO COMMENCING WORK.

NO LOOSE EXCAVATED MATERIAL SHALL BE LEFT IN THE CREEK AT THE END OF THE WORK DAY. REMOVE ALL LOOSE EXCAVATED MATERIAL TO A SECURE LOCATION OUTSIDE THE CREEK CHANNEL AND SUSPEND FURTHER CONSTRUCTION IN THE CREEK AREA IF RAINFALL THREATENS.

KARST FEATURES

NO SENSITIVE KARST FEATURES WERE IDENTIFIED ON SITE.

CEDAR MULCH

CEDAR MULCH CAN BE USED AS AN AID TO CONTROL EROSION ON CRITICAL SITES DURING LAND CLEARING AND PERIODS OF CONSTRUCTION WHEN RE-VEGETATION IS NOT PRACTICAL. THE BEST RESULTS ARE OBTAINED FROM ROUGH, LONG CUT (3 – 6 INCH) MULCHING. THE MOST COMMON USES ARE AS BERMS AT THE BOTTOM OF LONG, STEEP SLOPES AND AS A BLANKET IN CHANNELS WHERE DESIGNED FLOW DOES NOT EXCEED 3.5 FEET PER SECOND. ON INTERCEPTOR SWALES AND DIVERSION DIKES WHEN DESIGN FLOW EXCEEDS 6 FEET PER SECOND, AND ON LONG SLOPES WHERE RILL EROSION HAZARD IS HIGH AND PLANTING IS LIKELY TO BE SLOW TO ESTABLISH ADEQUATE PROTECTIVE COVER.

MATERIALS:

CEDAR MULCH IS EASILY OBTAINED AS A BY-PRODUCT OF LAND CLEARING OPERATIONS. IT CAN ALSO BE A COST SAVING ITEM BECAUSE IT IS A RECYCLED MATERIAL AND DOES NOT HAVE TO BE REMOVED FROM THE SITE.

INSPECTION AND MAINTENANCE GUIDELINES:

- CEDAR MULCH 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 APPLYING NEW LAYERS OF MULCH.

BUFFER ZONES

BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS – ENCROACHMENT INTO A BUFFER ZONE OR DAMAGE TO BUFFER ZONES AREAS WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.

SEDIMENT RUNOFF PREVENTION

HIGH POINTS ALONG EACH CREEK CROSSING APPROACH WILL BE MAINTAINED IN ORDER TO PREVENT SEDIMENT LAIDEN RUNOFF FROM FLOWING INTO THE CREEK VIA THE CREEK CROSSING.

BMP TYPE

WHEN SILT FENCE INSTALLATION ISN'T PRACTICABLE, MULCH FROM INITIAL CLEARING ACTIVITIES WILL BE UTILIZED TO STABILIZE ROCKY AREAS PRIOR TO SURFACE DISTURBANCE.

CONTRACTOR MAY OPT TO USE MULCH SOCKS/LOGS IN LIEU OF SILT FENCING BASED ON SURFACE CONDITIONS.

MULCH BERMS

MULCH BERMS MADE FROM MULCH PRODUCED ON SITE DURING INITIAL SITE CLEARING WILL BE USED FOR STABILIZATION IN FLAT AREAS OR UPGRADIENT OF SILT FENCE UPON APPROVAL BY LCRA INSPECTOR.

PERMANENT ROCK BERMS AND LEVEL SPREADERS

PERMANENT ROCK BERMS AND LEVEL SPREADERS CONSTRUCTED PER THE "ROCK BERM/UP OPTION" IN FIGURE 3-7 OF THE LCRA TECHNICAL MANUAL MUST USE METALLIC-COATED OR PVC-COATED STEEL WITH A MINIMUM WIRE SIZE OF 14 GAUGE (0.080 INCH OR 2.0 MM DIAMETER). PRIOR TO CONSTRUCTION OF LEVEL SPREADERS, THE LEVEL SPREADERS MUST BE STAKED IN THE FIELD AND INSPECTED BY LCRA. THE OWNER OR HIS AUTHORIZED REPRESENTATIVE IS RESPONSIBLE FOR CONTACTING LCRA FOR AN INSPECTION. IT IS RECOMMENDED THAT THE DESIGN ENGINEER BE PRESENT AT THE INSPECTION.

LEVEL SPREADERS MUST BE TURNED UP GRADIENT AT THE ENDS AS NECESSARY TO PREVENT FLOW FROM SPILLING AROUND THE ENDS.

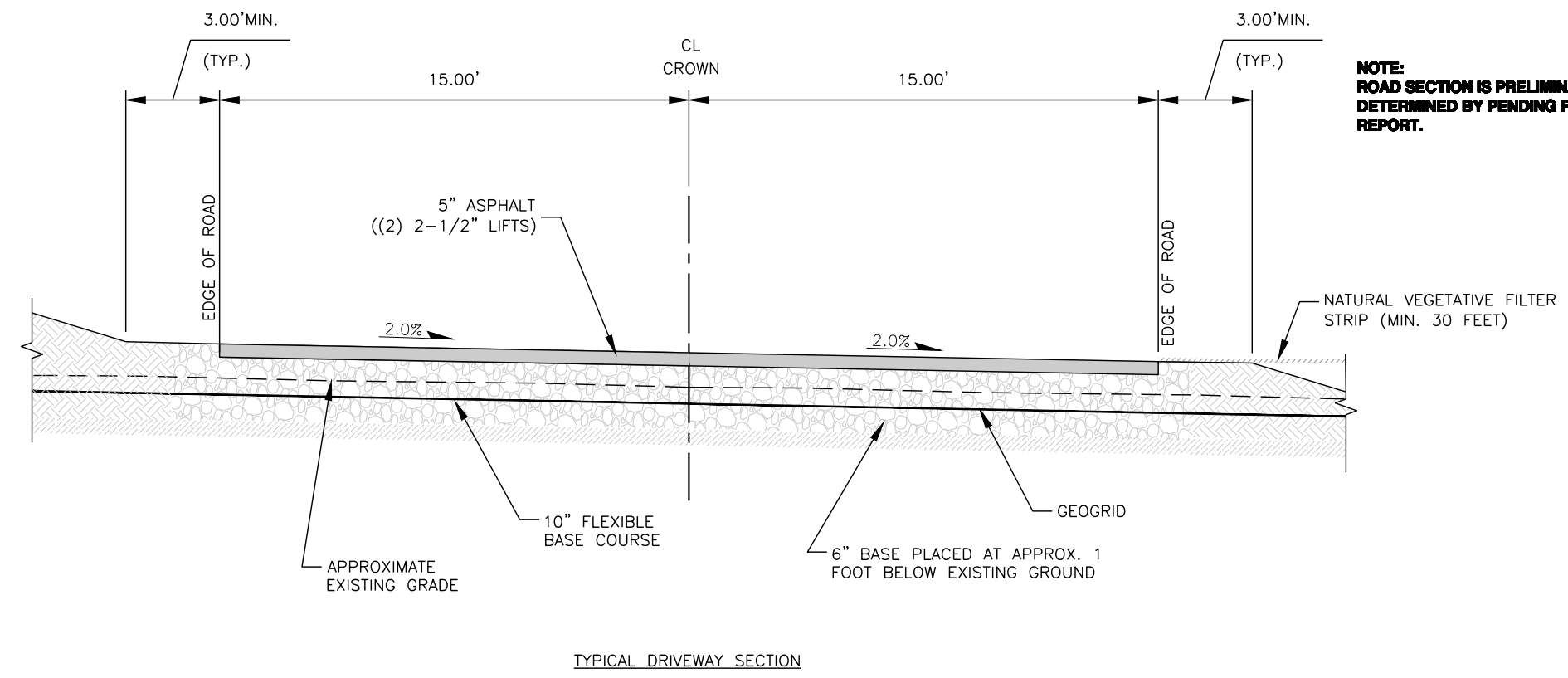
DEWATERING/DIVERSION PLAN

CREEK CROSSING CONSTRUCTION: THE CONTRACTOR MUST OBTAIN LCRA APPROVAL OF THE DETAILED/CONSTRUCTION PLAN BEFORE BEGINNING WORK ON THE PROPOSED ACCESS ROAD CROSSING.

EXTENDED DETENTION BASINS: A 40-HOUR MINIMUM DELAY MUST BE OBSERVED BEFORE DETAILED/CONSTRUCTION PLAN FOR EXTENDED DETENTION BASINS CAN TAKE PLACE. DISCHARGE MUST BE DONE IN A MANNER THAT DOES NOT CAUSE EROSION.

SLOPES

DURING CONSTRUCTION IF SLOPES ARE GREATER THAN 3:1, COORDINATE WITH PROJECT ENGINEER AND LCRA INSPECTOR FOR APPROPRIATE STABILIZATION OR VERIFICATION THAT CUT IN ROCK IS STABLE ENOUGH AND DOES NOT REQUIRE ADDITIONAL STABILIZATION.



- NOTES:
1. FLEXIBLE BASE SHOULD MEET TxDOT SPECIFICATION ITEM 247, GRADE 1-2, TYPE A, FLEXIBLE BASE SHOULD BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S MAXIMUM MODIFIED PROCTOR DENSITY (ASTM D 1557) AT A MOISTURE CONTENT OF ±2 PERCENTAGE POINTS OF OPTIMUM MOISTURE.
 2. RE-COMPACTED SUBGRADE SHOULD BE SCARIFIED TO A DEPTH OF SIX INCHES AND COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF THE MATERIAL'S MAXIMUM MODIFIED PROCTOR DRY DENSITY (ASTM D 1557) AND WITHIN A RANGE OF ±2 PERCENTAGE POINTS OF THE MATERIAL'S OPTIMUM MOISTURE CONTENT.
 3. GEOTGRID SHOULD CONSIST OF TENSAR TX7 AND BE PLACED AT THE BOTTOM OF THE FLEXIBLE BASE MATERIAL.

1"=12'

SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO FLOW ALONG THE SILT FENCE TO SETTLE OUT, IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE. A SCHEMATIC ILLUSTRATION OF A SILT FENCE IS SHOWN IN FIGURE 3-20.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORNE SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY, IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION SHOULD BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREA. THE LOCATIONS OF CONCENTRATED FLOW, SILT FENCING WITHIN THE SITE, MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

USE J-HOOKS TO TRAP AND POND RUNOFF FLOWING ALONG UPHILL SIDE OF SILT FENCE AS SHOWN IN FIGURE 3-21 OF THE LCRA HIGHLAND LAKES WATERSHED ORDINANCE WATER QUALITY MANAGEMENT MANUAL. THIS WILL FILTER OR SETTLE OUTFLOWS AND PREVENT RUNOFF FROM ESCAPING AROUND THE SIDES OF THE FENCE.

MATERIALS:

- SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.0 OZ/YD, ULTRAVIOLET STABILITY EXCEEDING 70% AND MINIMUM APARENT OPENING SIZE OF U.S. SIEVE NO. 30.
- FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR YBAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT², AND BRINDELL HARDNESS EXCEEDING 140.
- WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" x 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION:

- STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 1- FOOT DEEP AND SPACED NOT MORE THAN 6 FEET ON CENTER, WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
- LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE, UTILIZE J-HOOKS AS NECESSARY AS SHOWN IN FIGURE 3-21. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.
- THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW, WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
- THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
- SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE SILT FENCE POST. THERE SHOULD BE A 3-FOLD OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
- SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPED STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS:

- FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.
- FABRIC NOT SEALED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE)
- FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES)
- FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE)

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL IN EXCESS OF 0.5 INCH OR MORE.
- REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
- REPLACE ANY TORN FABRIC.
- 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 DOME MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICULAR ACCESS POINTS.
- WHEN CONSTRUCTION IS COMPLETE, 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.

SLOPE ANGLE	SILTY SOILS	CLAYS	SANDY SOILS
VERY STEEP (1:1)	50 FT.	75 FT.	100 FT.
STEEP (2:1)	75 FT.	100 FT.	125 FT.
MODERATE (4:1)	100 FT.	125 FT.	150 FT.
SLIGHT (10:1)	125 FT.	150 FT.	200 FT.

HYDROMULCH

SEED: PROVIDE SEED FROM THE PREVIOUS SEASON'S CROP MEETING THE REQUIREMENTS OF THE TEXAS SEED LAW, INCLUDING THE TESTING AND LABELING FOR PURE LIVE SEED (PLS = PURITY X GERMINATION). USE WITHIN 12 MO. FROM THE DATE OF THE ANALYSIS, WHEN BUFTADDRESS IS SPECIFIED, USE SEED THAT IS TREATED WITH KNO3 (POTASSIUM NITRATE) TO OVERCOME DORMANCY. USE TABLE 1 TO DETERMINE THE APPROPRIATE SEED MIXTURE AND APPLICATION RATES FOR TEMPORARY WET SEASON PLANTING. CONSULT TABLES 3 & 4 IN SECTION 3.2.2 OF THE ESC PLAN. IMMEDIATELY AFTER PLANTING THE SEED OR SEED MIXTURE, APPLY CELLULOSE FIBER MULCH UNIFORMLY OVER THE SEEDED AREA AT THE FOLLOWING RATES:

- SANDY SOILS WITH SLOPES OF 3:1 OR LESS: 2500 LB. PER ACRE.
- SANDY SOILS WITH SLOPES GREATER THAN 3:1: 3000 LB. PER ACRE.
- CLAY SOILS WITH SLOPES OF 3:1 OR LESS: 2000 LB. PER ACRE.
- CLAY SOILS WITH SLOPES GREATER THAN 3:1: 2300 LB. PER ACRE.

CELLULOSE FIBER MULCH RATES ARE BASED ON DRY WEIGHT OF MULCH PER ACRE. MIX CELLULOSE FIBER MULCH AND WATER TO MAKE A SLURRY AND APPLY UNIFORMLY OVER THE SEEDED AREA USING SUITABLE EQUIPMENT. USE A TACKLING AGENT APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR A CRIMPING METHOD ON ALL STRAW OR HAY MULCH OPERATIONS. REVEGETATION IS CONSIDERED AS 80% COVERAGE WITH NO LARGE BARE AREAS.

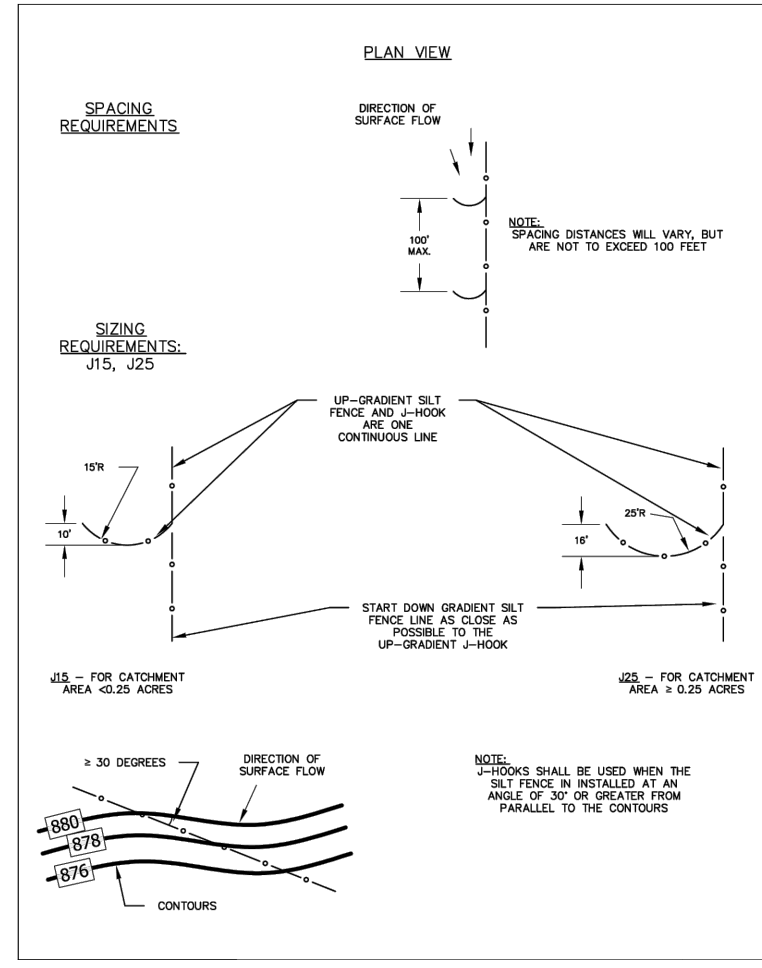


FIGURE 3-21

ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

MATERIALS:

- THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOT RINGS.
- CLEAN, OPEN GRADED 3 TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5- TO 8-INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION:

- LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
- BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
- PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM (FIGURE 3-23), TO A HEIGHT NOT LESS THAN 18\"/>

COMMON TROUBLE POINTS:

- INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM)
- BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE)

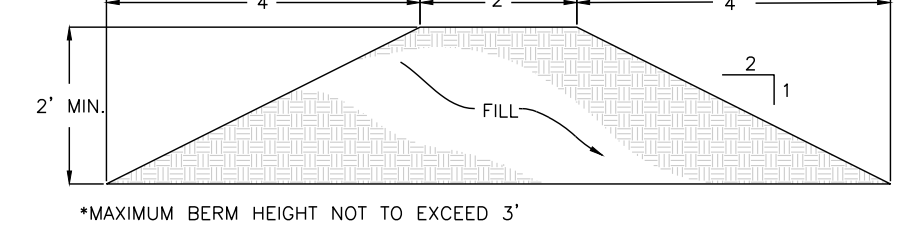
INSPECTION AND MAINTENANCE GUIDELINES:

- 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 BERMS 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 UPSLOPE AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

COMPACTED EARTHEN BERM

INSTALLATION: COMPRISED OF SOIL AND OVERBURDEN MATTER EITHER GENERATED ONSITE OR DELIVERED FROM OFFSITE. COMPACT WITH HEAVY EQUIPMENT IN 12" (MAX) LIFTS.

MAINTENANCE (TEMPORARY): INSPECT BERMS ONCE A MONTH UNTIL SUFFICIENTLY VEGETATED. REPLACE AS NECESSARY.

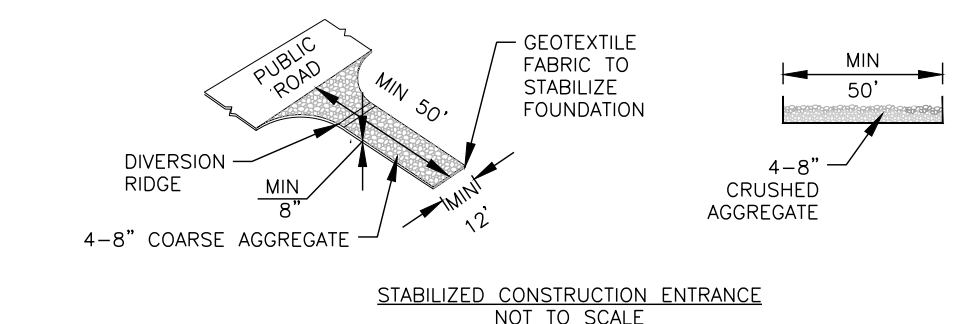


STABILIZED CONSTRUCTION ENTRANCE

INSTALLATION:

1. ADD CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12' OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
3. THE CONSTRUCTION ENTRANCE SHOULD BE 50' LONG.
4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6-8" HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
6. PLACE STONE TO DIMENSION AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
7. INSTALL A PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

MAINTENANCE: INSPECT WEEKLY. REPLACE STONE AS NECESSARY TO PREVENT TRACKING OFF-SITE.



STABILIZED CONSTRUCTION ENTRANCE NOT TO SCALE

GEOTEXTILE FABRIC PROPERTIES:

- MIN. 6 OZ/50 YD.; 140 LB/50, IN MULLEN BURST.
- EQUIVALENT OPENING SIZE MIN. 50 SEIE.
- GRADE SLOPE TO DRAIN.
- ADD ADDITIONAL STONE AS REQUIRED.
- STABILIZED CONSTRUCTION ENT SHOULD EXTEND FULL WIDTH OF ROAD.

ISSUE DATE: 11/01/2024
 DRAWN BY: JPM
 CHECKED BY: GGC
 SCALE: 1" = AS NOTED
 JOB NO.: 10853-256

SHEET NO.: **C.4**
 OF C.4

WESTWARD
 Environmental Engineering, Natural Resources
 P.O. Box 2205 Boerne, Texas 78006
 (830) 249-8284 Fax: (830) 249-0221
 TBP# REG. NO.: F-4524
 TBP# REG. NO.: 50112

DATE	BY	DESCRIPTION

STATE OF TEXAS
 PROFESSIONAL ENGINEERING
 LICENSE NO. 106651
 Curt G. Cornwall, P.E.
 11/1/2024

TEMPORARY BMP GENERAL NOTES
 LCRA PERMITTING – BURNET QUARRY
 ASPHALT, INC.
 3221 FM 3509, BURNET, TX 78611