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:

WESTWARD
Environmental. Engineering. Natural Resources.
Boerne, Texas
830-249-8284

Date: December 2024
Project No. 10853-256
-JPW/NMS-

STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED
PROFESSIONAL ENGINEER

Signature: _____
Curt G. Campbell, PE - License No. 106851
TX PE Firm No. 4524
Date: 3/21/2025

Table of Contents

APPENDICES

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 3 smaller pit areas totaling approximately 30 acres that will be utilized to handle onsite stormwater runoff. The site will include the following infrastructure: a processing plant, haul roads, a scale and scale house/office and Gorman pits (test pits). The plant pad is approximately 36 acres which includes the proposed stockpiling and materials handling areas. The proposed stormwater permanent BMPs include several quarry pits, final earthen perimeter berms, and natural vegetated filter strips, check dams, and rock berms.

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 4.61%, with existing drainage flowing unobstructed generally from the east to west. There are two USGS Blue Lines mapped on the site. Two converge forming a single unnamed tributary to Peters Creek. It is listed on the National Hydrography Dataset as intermittent, meaning it does not exhibit year-round flow. Westward met with representatives of LCRA onsite on September 11, 2024 to observe the tributary and discuss potential buffers. There was no observable bank or ordinary high-water mark. The tributary flows to the west and intersects Peters Creek about one mile downstream of Camp Longhorn. No discharge from the construction onsite will enter the drainage area of the man-made lake at Camp Longhorn. The other Blue Line, flows to the northwest toward the FM3509 frontage, ultimately draining to Spring Creek. The existing drainage flows unobstructed toward the drainage lows as sheet flow across native land except for a few minor ranch roads. There are three 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 totally 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, 2 portions of the site that will not be developed (DA 3A and 2B) 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 36 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 area for the processing plant will be graded slightly to assure proper diversion of drainage to the primary quarry pit (pit 4). The plant will consist of a series of conveyors, screens, crushers and washers to segregate the material into appropriate sizes for sale. Three Gorman Pits are proposed for processing of mined material which will be used for water recycling and material capture. The total Gorman Pit area includes approximately 10.3 acres and the pits themselves are approximately 6.9 acres in surface area.. The Gorman 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. The pits will be constructed so that minimal upgradient runoff would enter them and they will be operated with a minimum of 1 foot of freeboard. Since the pit do not accept drainage other than what directly lands on them the 1 foot of free board is more than sufficient to contain the 10-year, 24-hour rainfall event of 6.5 inches. These pits will be located within the drainage area of water quality pit 2 and any runoff would be captured.

The facility will be located on-site permanently (for more than 180 days) with proposed maximum production rates of 200 tons per hour (TPH) and 528,000 tons per year (TPY). Asphalt Inc., LLC will utilize BACT at the facility. Permanently mounted spray bars shall be installed at the inlet/outlet of all crushers, at all shaker screens, and at all material transfer points and used as necessary to maintain compliance with TCEQ rules and regulations. Dust emissions from in-plant roads and active work areas that are associated with the operation of this facility shall be minimized by watering. All stockpiles shall be sprinkled with water as necessary to minimize dust emissions.

In an effort to be extremely conservative the site has been evaluated assuming that impervious surface may be placed anywhere onsite, other than in drainage areas 3A and 2B which will be left undeveloped. 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. **Other improvements not illustrated on the final Conditions plan sheet will be submitted to LCRA for permit revision and approval.**

There are a total of six drainage areas for the site (DA-1, DA-2A, DA-2B, DA-3A, DA-3B and DA-04) in the final condition. 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 (sedimentation basins). These BMPs may be the only pit BMPs constructed other than the main quarry pit. The additional pit BMP (Pit 3) has been calculated to be available in the future if needed. The runoff from these 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**. Note that in the table we also included an analysis for pit 2 using the SCS method to evaluate the pit capacity to hold the runoff from the 2 year storm event from the entire predevelopment drainage area. Each pit was designed to accommodate a minimum of one foot of freeboard between the top of the pit walls and the 10-year water surface elevation. Stormwater will be conveyed to each of the three 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-3B. The portion of this 3.67-acre impervious cover area in DA-1 will be treated by pit 1 and the remaining acreage (less than 3 acres) in DA-3B will be treated with a downgradient natural vegetative filter strip.

Small areas of offsite drainage from the east drain into the property (see sheet C.1) in the existing condition. These areas will be allowed to drain around the final pit with minimal ponding. Once the pit is constructed offsite run-on will not enter the main pit.

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 stablished 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.

Access to the buffer is restricted by the proposed earthen berm as shown on the plans.

3 ROADWAY TREATMENT

A 60 foot 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-3B 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 60 feet wide, which is the maximum recommended width and has a total surface area of approx. 136,026 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-1 and DA-2A is proposed which would not otherwise drain to the main quarry pit (DA-4) or the NVFS in DA3B. Stormwater from Drainage Areas DA-1 and DA-2A will be directed to the proposed pits via earthen berms and swales as indicated on Interim Conditions Map. These berms are located along the perimeter setbacks and the swales are at the toe of the berms. Otherwise site drainage will follow the natural contours of the site. Berm heights will be a minimum of 4 feet. Berms at the perimeter of the site will be located outside the 50-foot setback from the property line on the east, west and south sides and 200 feet from the property line on the north. These setbacks are not required by LCRA but act as a perimeter buffer for the site. **Stormwater earthen berms will be constructed at the initiation of the project at the same time as pit 1 and pit 2 are constructed to direct runoff to the pits.**

5 EROSION SEDIMENTATION CONTROL

The first phase of development for this project will be to construct pit BMPs for basins DA1 and DA2. This will include initial clearing and installation of silt fence downgradient of the proposed pit areas. The material mined to create these pits will be used onsite to make the plant pad areas. Once the pit BMPs are in place they will serve as the sedimentation basins for the construction phase of the project where all runoff from the construction areas drains to these pits. Additional BMPs may be utilized onsite as part of the construction, but these BMPS are in excess to those required to ensure runoff from the site is mitigated onsite. Exact locations of any other BMPs may be adjusted in the field based on inspections and coordination with LCRA inspectors.

6 OTHER SITE FEATURES

Wells:

There are 2 wells located on-site as referenced in the hydrogeologic report as S-1 and S-3. It is anticipated that these wells will remain in service until such time as the pit expands near the well location. Prior to mining this area the wells will be plugged and abandoned in accordance with GCD/TCEQ regulations.

Proposed Well/Wells

This site will utilize groundwater, and a well is proposed on the plant pad to provide site water. This well will be sited within the plant footprint to protect it from traffic. The casing will be extended to a minimum of 18 inches above grade to prevent any infiltration from surface runoff. The well will be permitted and constructed in accordance with the CTGCD rules and regulations. Note: Additional wells may be necessary based on the hydrogeologic testing that is required as part of the GCD permitting process. If additional wells become necessary, this data will be shared with LCRA for their records.

Stock Ponds:

There are 3 stock ponds located on-site as referenced in the hydrogeologic report a features S-2, S-4, S-5. S-2 is located within the proposed mining area and will be removed during mining. S-4 and S-5 will remain and may be used for livestock onsite.

7 STORMWATER - WATER QUALITY PITS

Recharge Features:

If potentially sensitive recharge features are encountered during construction, a responsible individual, trained in sensitive recharge feature recognition, will direct work to stop in the immediate vicinity and evaluate the feature's sensitivity. If it is determined to be potentially sensitive, the feature will either be protected by a rock berm composed of clean, open-graded 3- to 5- inch rock, or sealed with concrete. Once the feature is either sealed or protected, operations may continue in the vicinity.

Outfalls:

Collected stormwater will be allowed to infiltrate and evaporate. In the unlikely event of a discharge ach pit will include an emergency overflow weir. These overflow weirs are designed to pass the 100-year rainfall event and are intended to protect the pond berms.

Dewatering:

Although dewatering is not anticipated from the Water Quality Pits, if it became necessary to remove captured stormwater it should be used onsite for dust control allowed to evaporate and infiltrate. In the event that a discharge offsite is necessary, water quality sampling will be performed to ensure the discharge meets the TCEQ/EPA requirements for discharge of mine dewatering. Filter bags will be utilized if necessary to prevent discharge of TSS above any regulatory discharge limitations

8 MAIN QUARRY PIT

The main quarry pit (pit 4) will be the primary mining area for the material to be processed and sold onsite. The quarry pit is planned to be 80 feet below grade to an elevation of approximately 1305-1310 amsl. Material will be removed from the pit via conveyor to the processing plant. It is

anticipated that the main pit will take approximately 18-24 months from the start of construction to be fully functional.

9 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 250 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 and LCRA will be notified. Please see the Hydrogeologic Report for further information.

10 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. **Monitoring information collected to meet TCEQ MSGP permit requirements will be submitted to LCRA in an annual report.**

Appendix – I

Existing Conditions

FM 3509

DRAINAGE CHANNEL

25' BUFFER FROM EDGE OF BANK

PROPERTY LINE

EXISTING HOUSE

EXISTING WELL

N

0 200 400 800

SCALE: 1" = 400'

LEGEND

- PROPERTY LINE
- BUFFER LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING FENCELINE
- (W) 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

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2/17/2025

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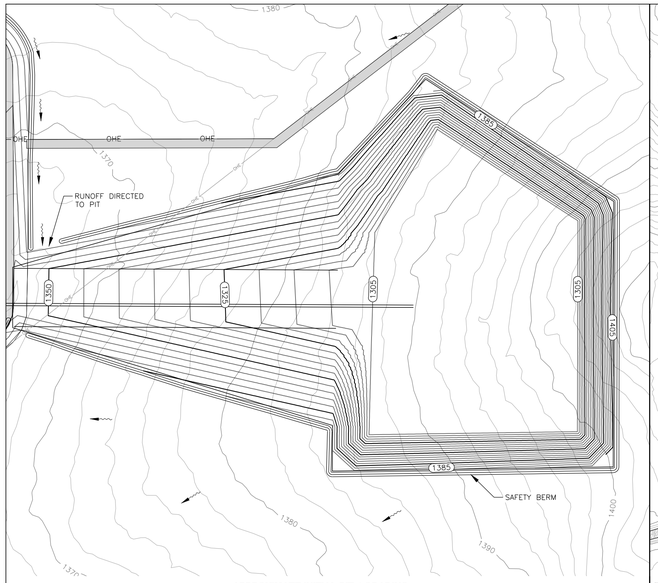
License No. 106851

EXISTING CONDITIONS

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

Appendix – II

Proposed Grading & Drainage Patterns



APPROXIMATE INITIAL PIT 4 GRADING
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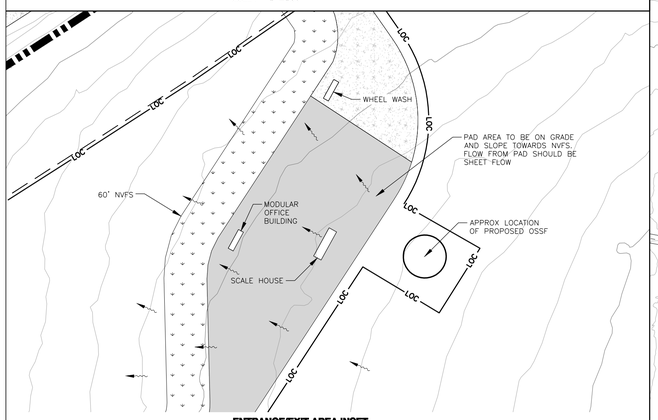

ENTRANCE/EXIT AREA INSET
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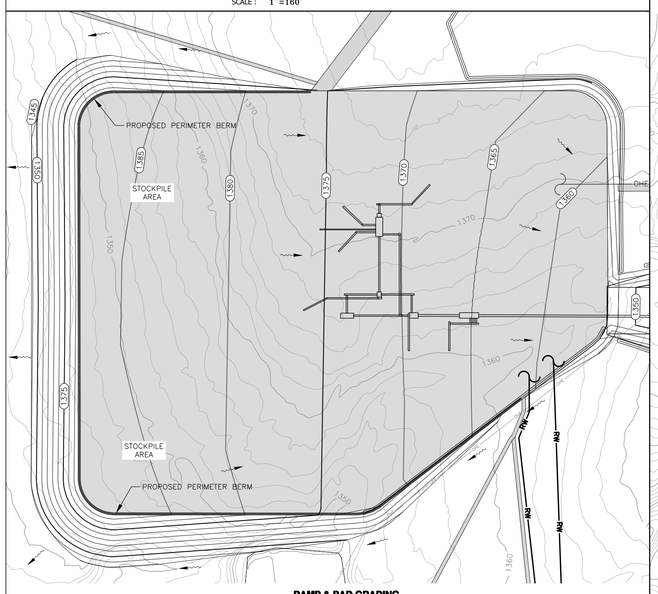

RAMP & PAD GRADING
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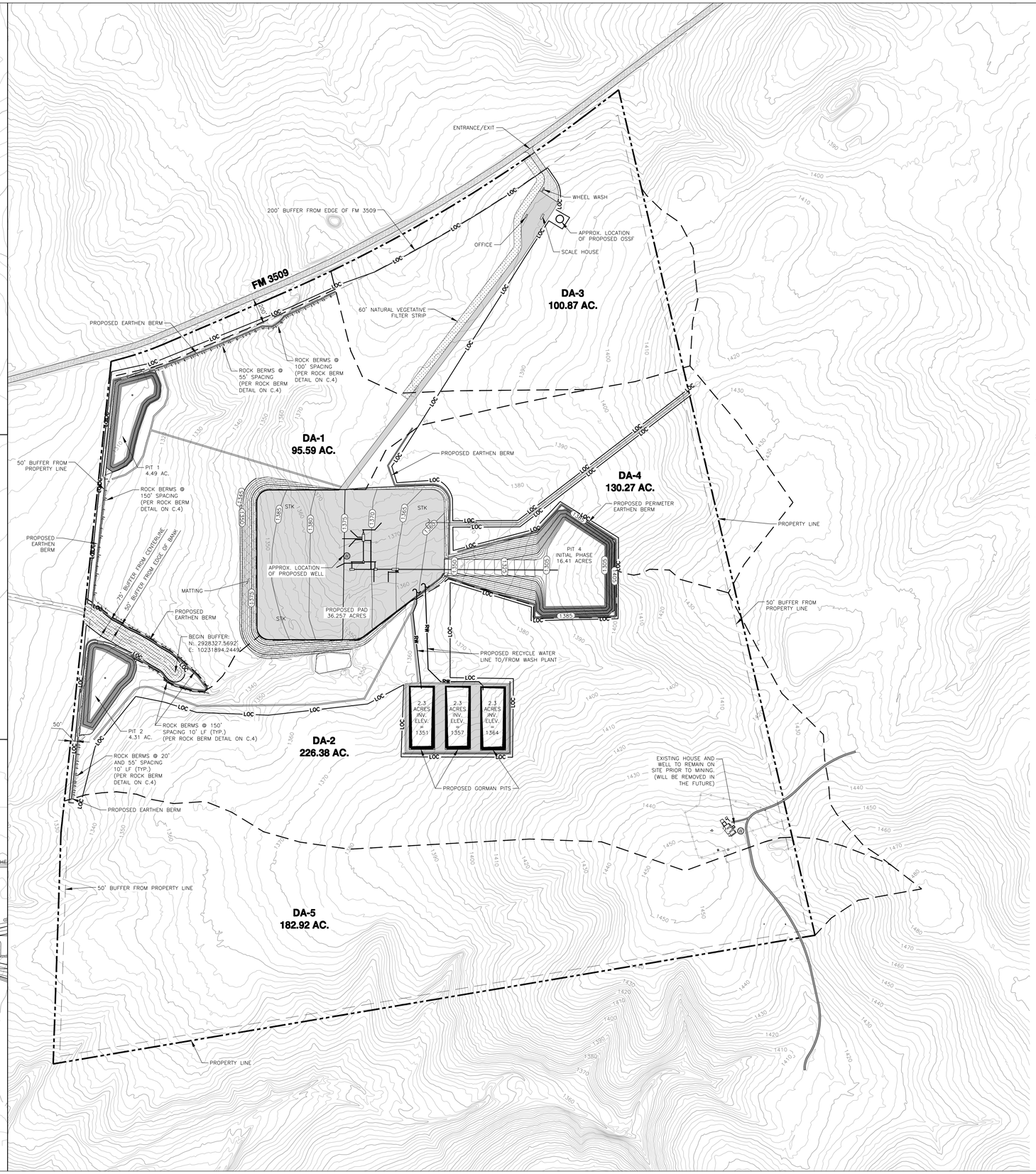

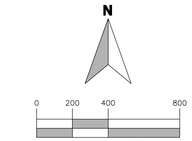

LEGEND

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

NOTES

1. BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS. ENCROACHMENT INTO A BUFFER ZONE OR DAMAGE TO BUFFER ZONE AREA WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.
2. DUST CONTROL WILL BE PROVIDED PER TCEQ SWP3 AND AIR PERMIT.

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.

IMAGE:	N/A
ISSUE DATE:	3/21/2025
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	400'
JOB NO.:	10853-256

SHEET NO.:
C.2
OF C.5

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STATE OF TEXAS
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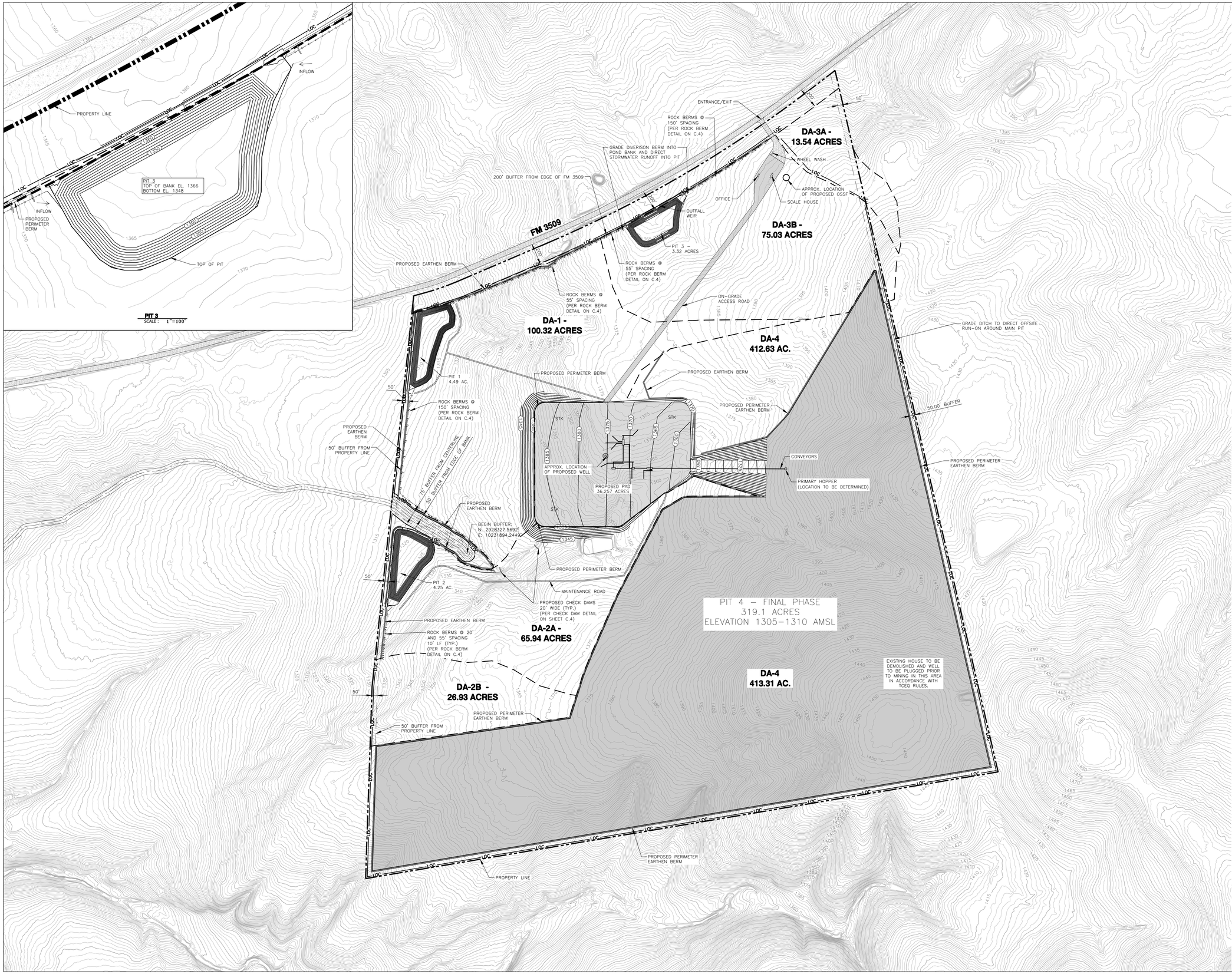
3/21/2025

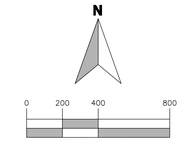
Curt G. Campbell, P.E.
License No. 106851

INITIAL CONDITIONS

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

PIT 3
SCALE: 1"=100'





LEGEND

- PROPERTY LINE
- EXISTING FENCELINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- DRAINAGE AREAS
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- BERM (TOP & TOE OF SLOPE)
- STK — STOCKPILE
- W — WATER WELL
- ASPHALT AREA
- BASE AREA

NOTES:

- PROPOSED RETENTION PIT 3 IS 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.
- 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 SOUTHEAST CORNER AND FLOW INTO RETENTION PIT 2.
- VEGETATIVE FILTER STRIP TO BE REMOVED AND REPLACED BY RETENTION PIT 3 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 320 ACRE CONTRIBUTING DRAINAGE AREA ENDS. (LCRA HWLO 5.2(c)(i))
- BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS – ENCROACHMENT INTO A BUFFER ZONE OR DAME TO BUFFER ZONE AREAS WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.
- DUST CONTROL WILL BE PROVIDED PER TCEQ SWP3 AND AIR PERMIT.
- THE 60' NVFS IS NOT NECESSARY IN THIS PHASE AS DA-3B IS UTILIZING PIT 3 FOR WATER QUALITY.
- ALL DEVELOPMENT IS LIMITED TO WHAT IS SHOWN ON THE FINAL CONDITIONS PLAN SHEET.
- ANY FUTURE DEVELOPMENT NEEDS TO BE SUBMITTED TO LCRA FOR TECHNICAL REVIEW AND PERMIT REVISION APPROVAL.
- NO OFFSITE RUN-ON WILL ENTER THE MAIN PIT, MINIMAL PONDING IS EXPECTED.

IMAGE:	N/A
ISSUE DATE:	3/27/2025
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	400'
JOB NO.:	10853-256

SHEET NO.:
C.3
OF C.5

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FINAL CONDITIONS
LCRA PERMITTING – BURNET QUARRY
ASPHALT, INC.
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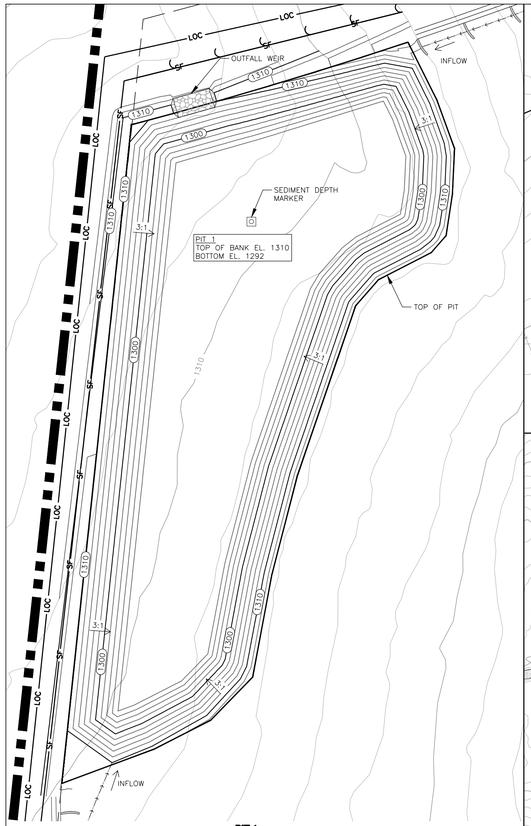
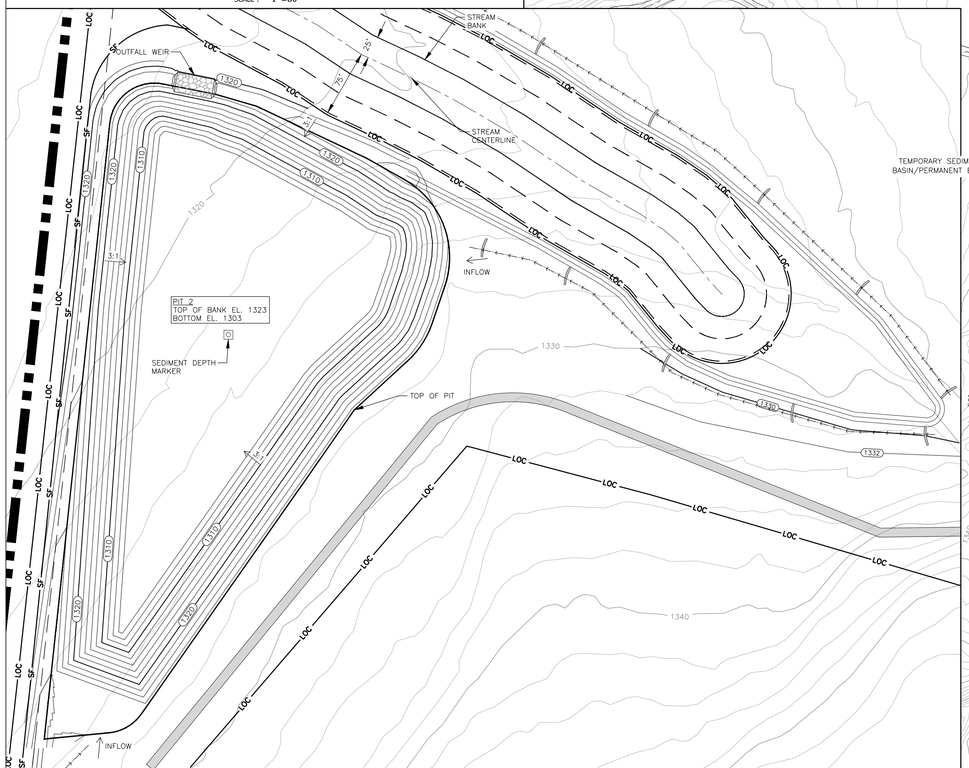
Appendix – III

Location & Schematics of BMPs

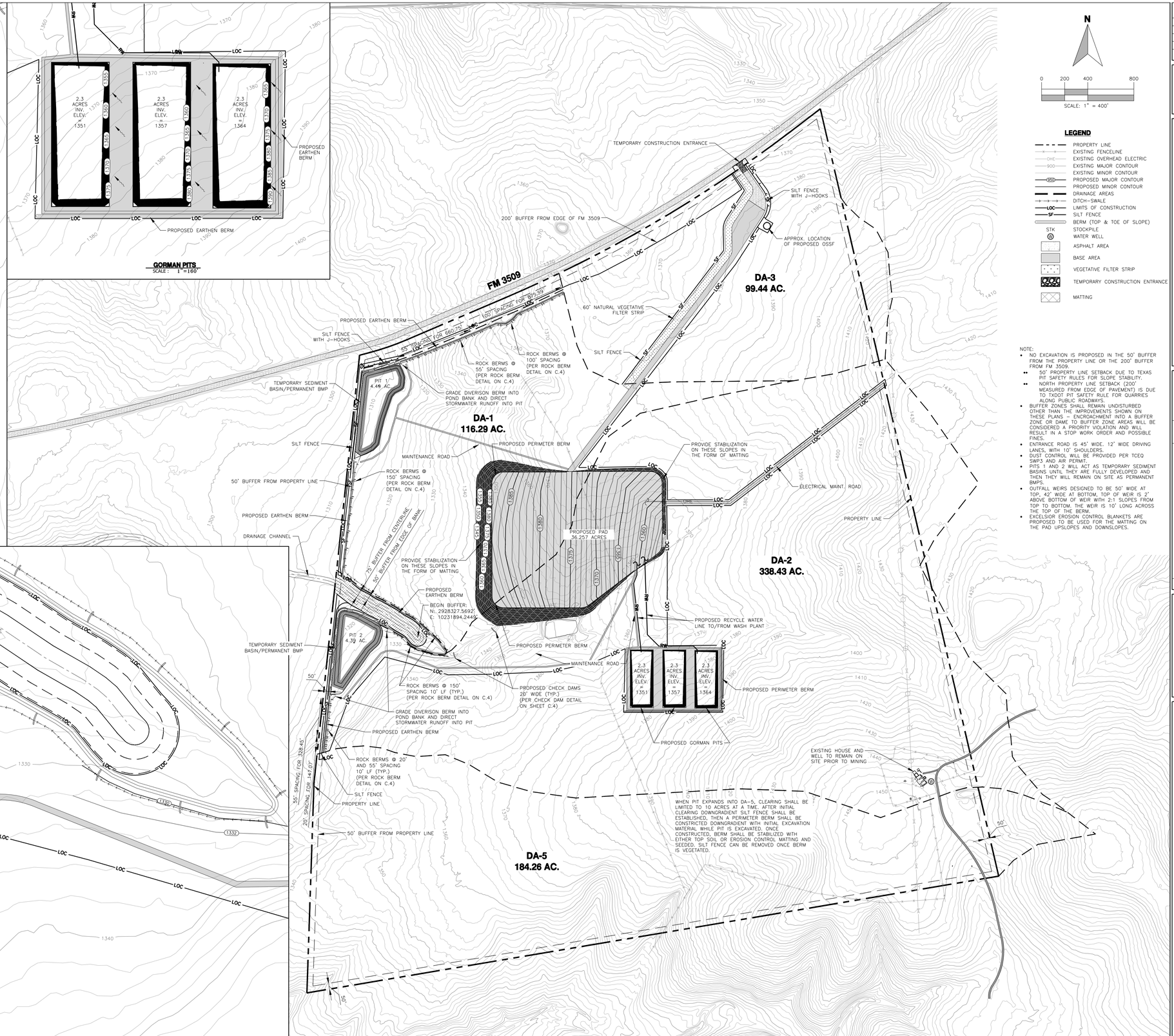


PIT 1
SCALE : 1"=80'

GORMAN PITS
SCALE : 1"=160'



PIT 2 AND BUFFER ZONE
SCALE : 1"=80'



N

0 200 400 800

SCALE: 1" = 400'

LEGEND

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

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.
- BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS – ENCROACHMENT INTO A BUFFER ZONE OR DAME TO BUFFER ZONE AREAS WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.
- ENTRANCE ROAD IS 45' WIDE, 12' WIDE DRIVING LANES, WITH 10' SHOULDERS.
- DUST CONTROL WILL BE PROVIDED PER TCEQ SWP3 AND AIR PERMIT.
- PITS 1 AND 2 WILL ACT AS TEMPORARY SEDIMENT BASINS UNTIL THEY ARE FULLY DEVELOPED AND THEN THEY WILL REMAIN ON SITE AS PERMANENT BMP'S.
- OUTFALL WEIRS DESIGNED TO BE 50' WIDE AT TOP, 42' WIDE AT BOTTOM, TOP OF WEIR IS 2' ABOVE BOTTOM OF WEIR WITH 2:1 SLOPES FROM TOP TO BOTTOM. THE WEIR IS 10' LONG ACROSS THE TOP OF THE BERM.
- EXCELSIOR EROSION CONTROL BLANKETS ARE PROPOSED TO BE USED FOR THE MATTING ON THE PAD UPSLOPES AND DOWNSLOPES.

IMAGE:	N/A
ISSUE DATE:	3/21/2025
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	400'
JOB NO.:	10853-256

SHEET NO.:

C.1

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3/21/2025

EROSION & SEDIMENTATION CONTROL PLAN

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 BEGIN IN THE PROPOSED PLANT AREA (A) FIRST, FOLLOWED BY INITIATING THE INITIAL PIT AREA B.

A – THE TEMPORARY BMPS (SILT FENCE, ROCK BERMS, PITS, ETC.) WILL NEED TO BE INSTALLED AND THE BUFFER ZONE STAKING WILL NEED TO BE INSPECTED BY A LCRA INSPECTOR BEFORE ANY WORK COMMENCES. PERMITEE MUST CONTACT LCRA TO SCHEDULE AN INSPECTION OF THE ESC'S AND BUFFERS ZONE STAKING A MINIMUM OF 2 WORKING DAYS PRIOR TO THE PRE–CONSTRUCTION MEETING. 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 PITS. 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, PONDS 1 AND 2 WILL BE ROUGHED IN AND UTILIZED AS SEDIMENTATION BASINS IN INITIAL PHASE UNTIL COMPLETED, THEN DRILLING AND BLASTING WILL COMMENCE TO BEGIN EXCAVATION OF THE PLANT AREA. TEMPORARY BERMS MAY BE USED TO DIRECT RUNOFF FROM DISTURBED AREAS TO THE PITS 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 PITS. AFTER CONSTRUCTION OF NECESSARY BERMS AND PITS (INCLUDING THEIR OUTFALL STRUCTURES) IS COMPLETED, MINING OF GORMAN PITS WILL BEGIN, AND THE PLANT EQUIPMENT WILL BE BROUGHT IN AND ERECTED. NEXT, EXCAVATION WILL BEGIN FOR THE GORMAN PITS, AND UPON COMPLETION OF THE PLANT AND GORMAN PITS CONSTRUCTION, CRUSHING ACTIVITIES WILL COMMENCE. LATER, EXCAVATION WILL BEGIN IN THE ENTRANCE AREA INCLUDING A TEMPORARY BUILDING PAD.

B – THE TEMPORARY BMPS (SILT FENCE, ROCK BERMS, TEMPORARY SEDIMENTATION BASINS, ETC.) WILL NEED TO BE INSTALLED AND THE BUFFER ZONE STAKING WILL NEED TO BE INSPECTED BY A LCRA INSPECTOR BEFORE ANY WORK COMMENCES. PERMITEE MUST CONTACT LCRA TO SCHEDULE AN INSPECTION OF THE ESC'S AND BUFFERS ZONE STAKING A MINIMUM OF 2 WORKING DAYS PRIOR TO THE PRE–CONSTRUCTION MEETING. 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 10 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.

THE FINAL 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.
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 (BROAD 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 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 EMPLACED 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 THE 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. DEWATER OR DIVERT FLOW PRIOR TO COMMENCING WORK WITHIN CREEK CHANNELS. CONTACT LCRA FOR INSPECTION OF DEWATERING/DIVERSION 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.

DEWATERING/DIVERSION PLAN

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

EXTENDED DETENTION BASINS:
A 40–HOUR MINIMUM DELAY MUST BE OBSERVED BEFORE DEWATERING FROM 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.

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 ARES 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 LADEN 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" LIP 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.

LCRA EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).

2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE LCRA WATER QUALITY MANAGEMENT TECHNICAL MANUAL AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.

3. A PRE–CONSTRUCTION CONFERENCE SHALL BE HELD ON–SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND LCRA WATERSHED MANAGEMENT INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE LCRA INSPECTOR, AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.

4. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE LCRA WATERSHED MANAGEMENT PROGRAM. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE LCRA WATERSHED MANAGEMENT INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.

5. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER RAINFALL EVENTS IN EXCESS OF 0.5" TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.

6. PRIOR TO FINAL ACCEPTANCE BY THE LCRA, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.

7. PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW. A MINIMUM OF FOUR INCHES OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS (EXCEPT ROCK OUTCROP). SALVAGED TOPSOIL FROM THE SITE SHOULD BE USED WHENEVER POSSIBLE. IMPORTED TOPSOIL SHALL BE WEED FREE WITH

A. A MINIMUM 20% ORGANIC CONTENT. TOPSOIL PLACED ON SLOPES EXCEEDING 5 HORIZONTAL TO 1 VERTICAL SHALL HAVE A RELATIVELY HIGH RESISTIVITY TO EROSION.

B. THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS (SELECT ONE OF THE THREE SEED COMBINATIONS LISTED BELOW):

Dates	Climate	Species (lb/ac)	
Year Round	Permanent Cool/Warm Season (Native Species)	Purple three-awn (Aristida purpurea)	1.4
		Sideoats grama (Bouteloua curtipendula)	2.0
		Silver bluestem (Bothriochloa laguroides)	6.0
		Buffalograss (Buchloe dactyloides)	1.4
		Canadian wildrye (Elymus Canadensis)	1.4
		Engelmann's daisy (Engelmannia pinnatif	0.6
		Green sprangletop (Leptochloa dubia)	2.6
		Mexican hat (Ratibida columnifera)	1.0
		Little bluestem (Schizachyrium scoparium	1.8
		Indiangrass (Sorghastrum nutans)	1.8
		Texas Wintergrass (Nassella leucotricha)	15.0
		Total	**35.0**
Mar 30-Oct 1	Permanent Warm Season	Bermuda (Cynodon dactylon)(hulled)	45.0

APPENDIX 2.7.2

Oct 1-Mar 30	Permanent Cool/Warm Season	Bermuda (Cynodon dactylon)(unhulled)	70.0
		*Cereal Rye (Secale cereale)	90.0
		Total	**160.0**

TAKE CARE TO DISTRIBUTE SEED EVENLY, BY SOWING FINE AND LARGE SEEDS SEPARATELY OR BY USING A FINE SEED BOX. WHEN BROADCASTING SEEDING, THE APPLICATION RATE SHOULD BE DOUBLED AND THE AREA ROLLED TO ENSURE A GOOD SEED/SOIL CONTACT

*FROM SEPTEMBER 15 TO MARCH 1, OATS (21 LB/ACRE) AND WINTER WHEAT (30 LB/ACRE) MAY BE SUBSTITUTED FOR RYE. MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 3500 LB/ACRE (HAY), 4500 LB/ACRE OR 2500 LB/ACRE (HYDRAULIC MULCH). TACKIFIER, IF USED SHALL BE BIODEGRADABLE.

C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX INCHES. THE IRRIGATION SHALL OCCUR AT TEN–DAY INTERVALS DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF ½ INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.

D. RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1½ INCHES HIGH WITH 70% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST. CRITICAL AREAS INCLUDING CREEK CROSSINGS, SLOPES, STORMWATER DISCHARGE POINTS MUST BE COMPLETELY STABILIZED. PERMANENT WATER QUALITY BMPS MUST ATTAIN 80% COVERAGE.

8. DEVELOPER INFORMATION:

OWNER______________________________ PHONE #_______________

ADDRESS____

OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:

__________ ________________________PHONE #_______________

PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE:

__________ ________________________PHONE #_______________

PERSON OR FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:

__________ ________________________PHONE #_______________

9. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE LCRA WATERSHED MANAGEMENT INSPECTOR AT LEAST 48 HOURS PRIOR WITH THE LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.

NOTES FOR CONSTRUCTION IN CREEKS:

SCHEDULE WORK WHEN A MINIMUM OF _(INCLUDE A SUFFICIENT TIME PERIOD TO COMPLETE THE WORK)_DAYS OF DRY WEATHER ARE FORECAST. DEWATER OR DIVERT FLOW PRIOR TO COMMENCING WORK WITHIN CREEK CHANNELS. CONTACT LCRA FOR INSPECTION OF DEWATERING/DIVERSION 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.

LCRA TECHNICAL MANUAL SECTION 4.3.7 (5–8) FOR NVFS:

(5) UPPER BOUNDARY REQUIREMENTS: THE FILTER STRIP MUST RUN ALONG THE ENTIRE EDGE OF THE CONTRIBUTING AREA, NO COLLECTION OR ROUTING ALLOWED EXCEPT FOLLOWING A WATER QUALITY BASIN WITH FLOW ATTENUATION OR DISCHARGE FROM A LEVEL SPREADER TO THE FILTER STRIP. THE SOIL ALONG THE UPPER BOUNDARY MUST BE REINFORCED WITH PROTECTIVE MATTING OR AN INFILTRATION TRENCH (PREFERRED) MAY BE USED. REFER TO FIGURE 4.14.

(6) VELOCITY RESTRICTIONS: VEGETATIVE FILTER STRIPS ARE SUSCEPTIBLE TO EROSION AND THE FORMATION OF RILLS; THEREFORE, MAY REQUIRE THE USE OF A FLOW SPREADER OR AN INFILTRATION TRENCH TO SPREAD FLOWS AND DISSIPATE EROSIVE VELOCITIES.
THE RUNOFF FROM THE CONTRIBUTING AREA ENTERING THE UPPER BOUNDARY OF THE FILTER STRIP SHALL BE IN SHEET FLOW CONDITIONS. SHEET FLOW CONDITIONS MUST MEET THE FOLLOWING CONSTRAINTS DURING THE PEAK FLOW OF A 1–YR, 3–HR STORM EVENT UNDER FULLY-DEVELOPED CONDITIONS:

I. THE VELOCITY OF FLOW ACROSS THE FILTER STRIP MUST NOT EXCEED 1 FT/SEC.

II. THE AVERAGE DEPTH OF FLOW ACROSS THE FILTER STRIP MUST NOT EXCEED 0.2 FEET FOR A VEGETATIVE FILTER STRIP USED IN COMBINATION WITH A WATER QUALITY BASIN.

L = 5Q1 YEAR DEV
L = MINIMUM WIDTH OF A FLOW SPREADER (FT) PERPENDICULAR TO FLOW
Q(1 YEAR DEV) = PEAK FLOW RATE FROM THE 1–YR, 3–HR STORM EVENT (SEE APP. 2.4)

III. THE AVERAGE DEPTH OF FLOW ACROSS THE FILTER STRIP MUST NOT EXCEED 0.1 FEET FOR A VEGETATIVE FILTER STRIP USED AS A STAND ALONE BMP.

L = 10Q1 YEAR DEV
L = MINIMUM WIDTH OF A FLOW SPREADER (FT) PERPENDICULAR TO FLOW
Q1 YEAR DEV = PEAK FLOW RATE FROM THE 1–YR, 3–HR STORM EVENT (SEE APP. 2.4)

(7) SURFACE CHARACTERISTICS: THE FILTER AREA MUST BE FREE OF GULLIES, RILLS AND FLOW CONCENTRATIONS AND HAVE 70% VEGETATIVE COVER.

(8) SOIL REQUIREMENTS: THE SOIL MUST AVERAGE 4–INCHES IN DEPTH. ROCK CROP AREAS MAY BE PRESENT BUT MUST BE DEDUCTED FROM THE TOTAL FILTER STRIP AREA AND MUST NOT AFFECT THE FUNCTION OF THE VEGETATIVE FILTER STRIP.

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 POND, ALLOWING HEAVIER SOLIDS 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 MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS
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 TECHNICAL 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 OZ/YD, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT 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 8 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 STEEL FENCE POST. THERE SHOULD BE A 3–FOOT 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 IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS:
- FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.
- FABRIC NOT SEATED 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 DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.
- WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE SPACING ON SLOPING SITES			
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 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. FOR TEMPORARY COLD 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 TACKING AGENT APPLIED IN ACCORDANCE WITH THE MANUFACTURER'SRECOMMENDATIONS OR A CRIMPING METHOD ON ALL STRAW OR HAY MULCH OPERATIONS. REVEGETATION IS CONSIDERED AS 80% COVERAGE WITH NO LARGE BARE AREAS.

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 SHOAT 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".
- WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
- BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
- THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

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 DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

IMAGE: N/A	
ISSUE DATE:	3/21/2025
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	AS NOTED
JOB NO.:	10853–256

SHEET NO.:

C.4

OF C.5

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TBPE REG. NO.: F–4524
TBPG REG. NO.: 50112

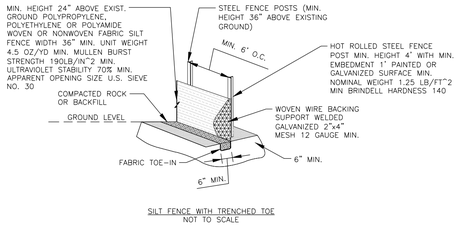
REV.	DESCRIPTION	BY	DATE

STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED
PROFESSIONAL ENGINEER

3/21/2025

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

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



SILT FENCE WITH TRENCHED TOE
NOT TO SCALE

FIGURE 3-20

Installation:

Proper installation of blankets and matting is necessary for these materials to function as intended. They should always be installed in accordance with the manufacturer's recommendations. Proper anchoring of the material and preparation of the soil are two of the most important aspects of installation. Typical anchoring methods are shown in Figure 14 and Figure 15.

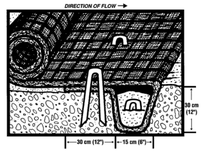


Figure 3-14 Initial Anchor Trench for Blankets and Mats

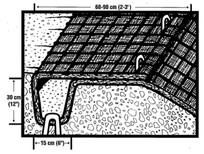


Figure 3-15 Terminal Anchor Trench for Blankets and Mats

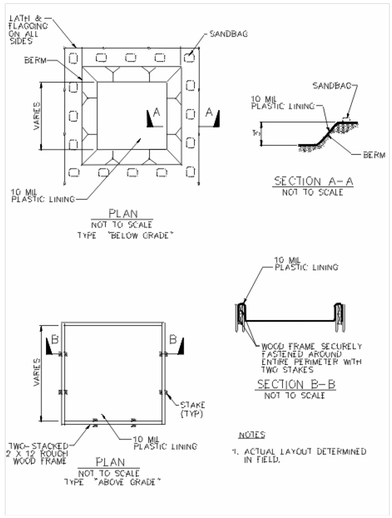
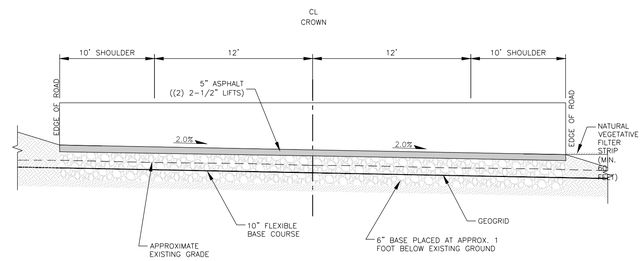


Figure 3-35 Schematic Diagrams of Concrete Washout Areas

NOTE:
ROAD SECTION IS PRELIMINARY TO BE DETERMINED BY PENDING FINAL GEOTECH REPORT.



TYPICAL DRIVEWAY SECTION

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. GEOGRID SHOULD CONSIST OF TENSAR TX7 AND BE PLACED AT THE BOTTOM OF THE FLEXIBLE BASE MATERIAL

IMAGE:	N/A
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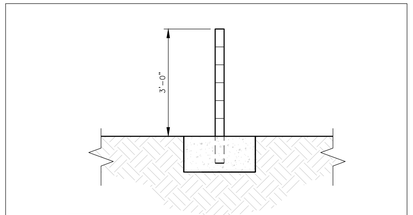


DETAIL SHEET C1 — **SEDIMENT DEPTH MARKER** SCALE: 1/2" = 1'-0"

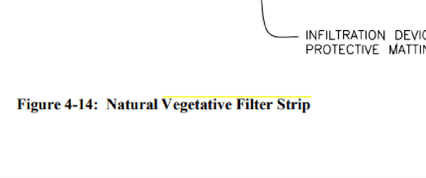


FIGURE 3-21

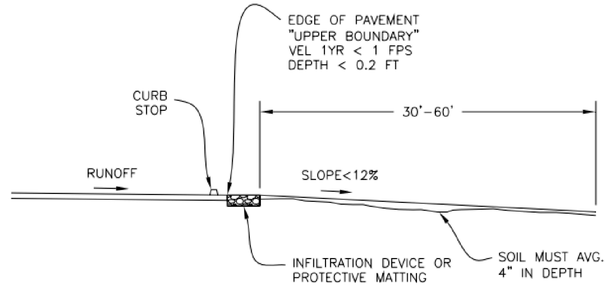
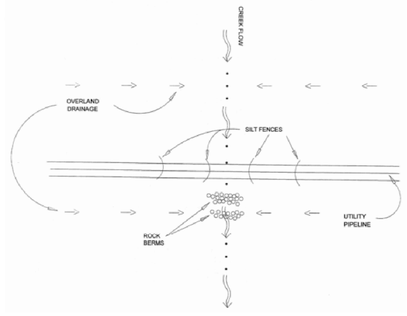
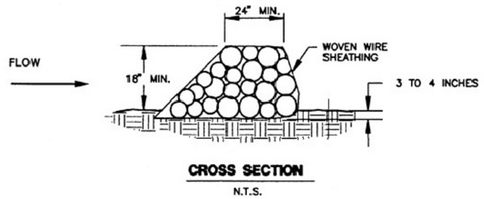


Figure 4-14: Natural Vegetative Filter Strip

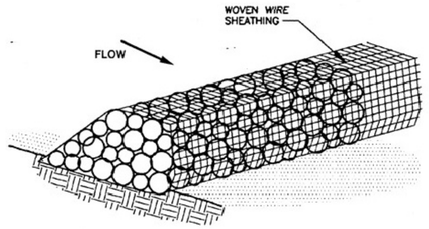


Utility Crossing or Excavation within Creek

APPENDIX 2.7.1



CROSS SECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

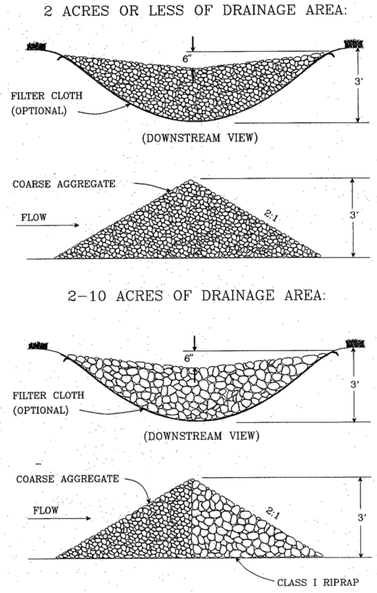
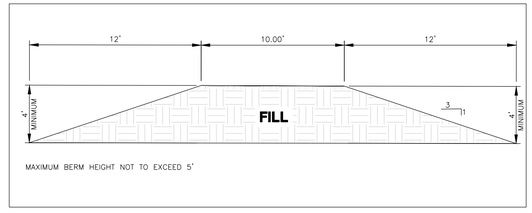


Figure 3-26 Diagram of a Rock Check Dam

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.

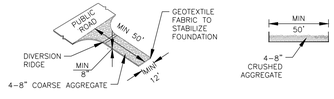


MAXIMUM BERM HEIGHT NOT TO EXCEED 5'

STABILIZED CONSTRUCTION ENTRANCE

INSTALLATION:
1. AVOID 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" HIGHT 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 CONDITONS 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/SQ. YD.; 140 LB/SQ. IN MULLEN BURST.
- EQUIVALENT OPENING SIZE MIN. 50 SIEVE.
- GRADE SLOPE TO DRAIN.
- ADD ADDITIONAL STONE AS REQUIRED.
- STABILIZED CONSTRUCTION EXIT SHOULD EXTEND FULL WIDTH OF ROAD.

REV	DESCRIPTION	BY	DATE

STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED
PROFESSIONAL ENGINEER
3/21/2025
Curt G. Campbell, P.E.
License No. 106851

BMP GENERAL NOTES & DETAILS CONT.
LCRA PERMITTING - BURNET QUARRY
ASPHALT, INC.
3221 FM 3509, BURNET, TX 78611

Appendix – IV

Soils Map

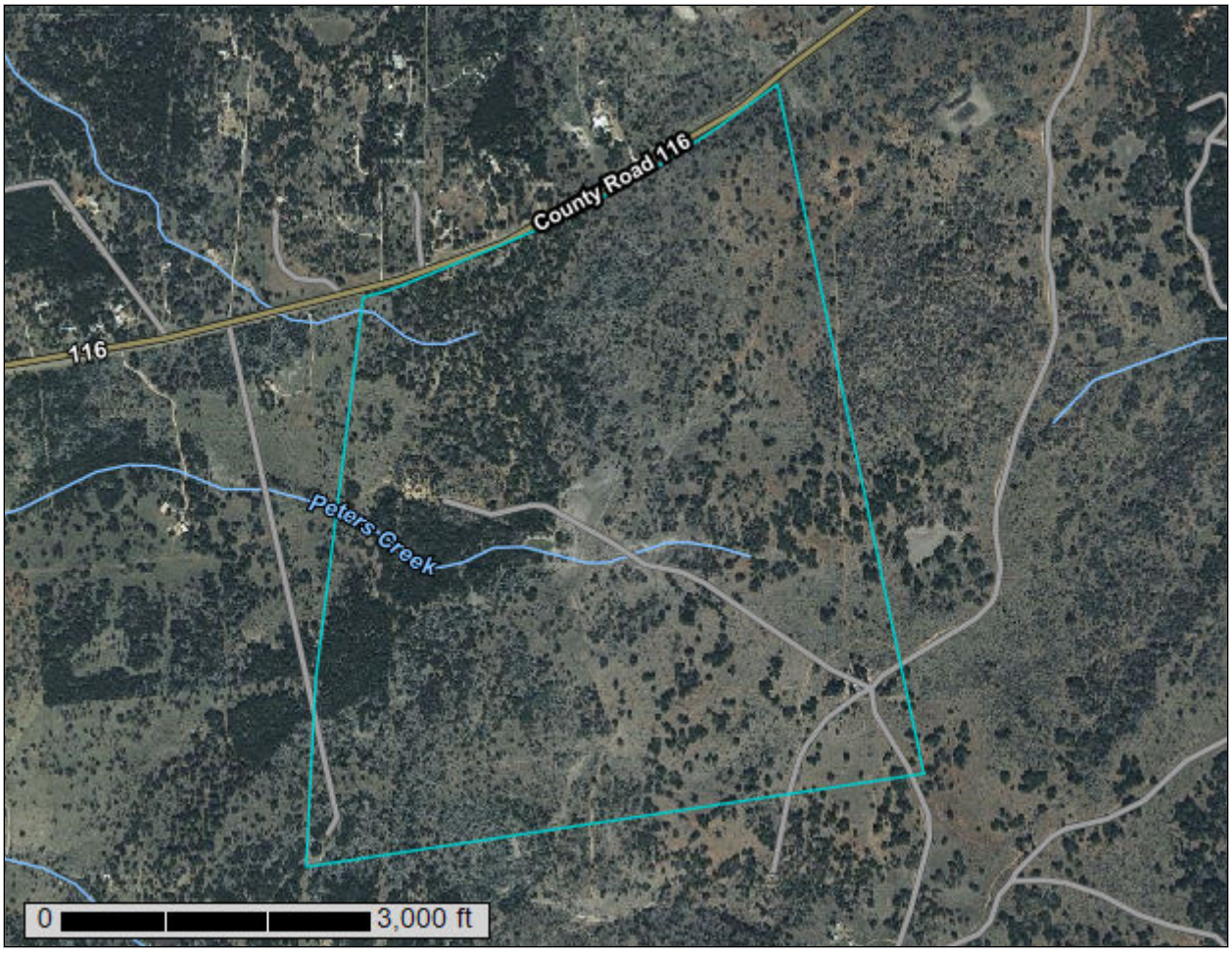
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Blanco and Burnet Counties, Texas



July 11, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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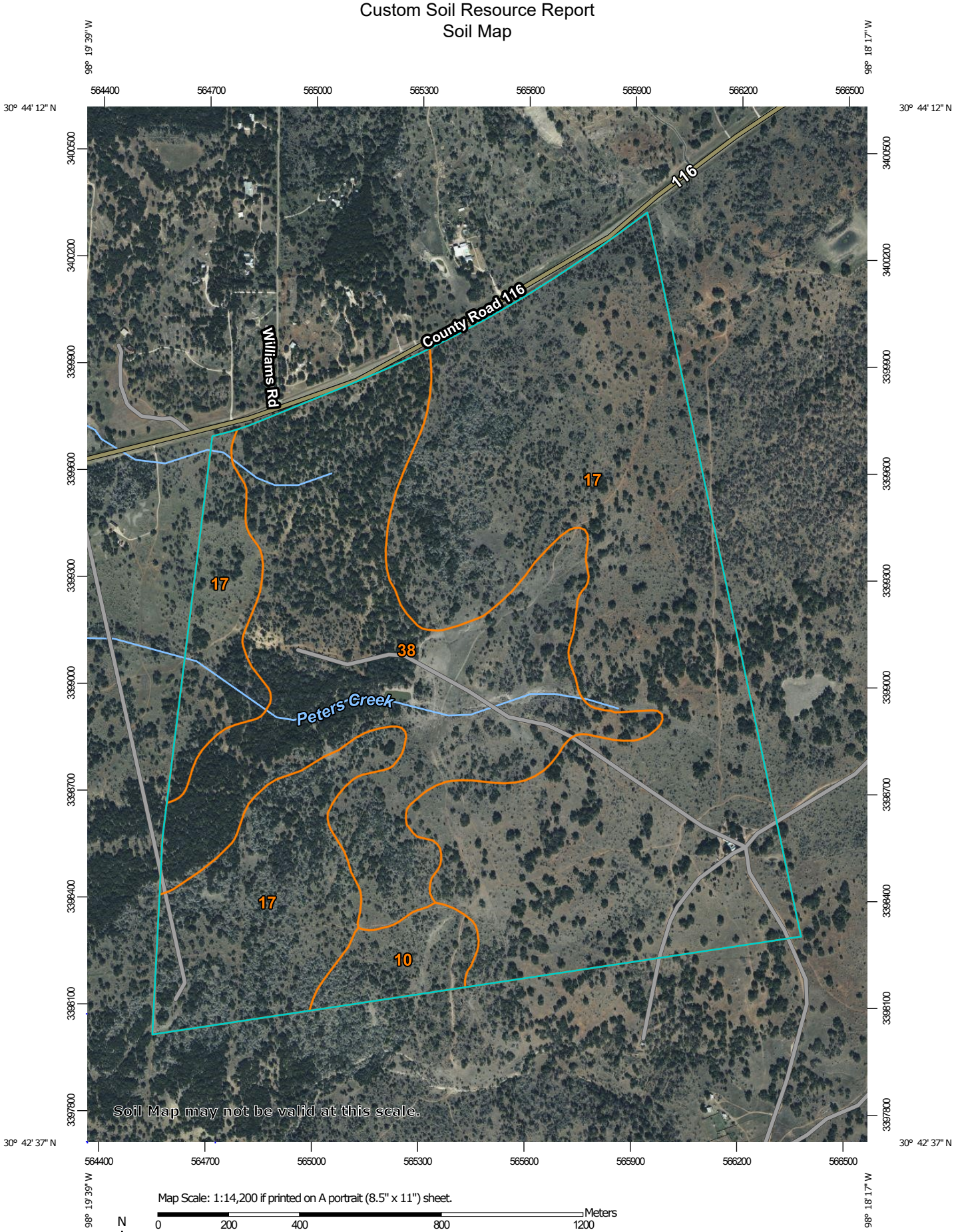
Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



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

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:31,700.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Blanco and Burnet Counties, Texas
Survey Area Data: Version 20, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 15, 2019—Dec 19, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Eckert-Rock outcrop complex, 2 to 20 percent slopes	21.5	3.0%
17	Hensley gravelly loam, 1 to 8 percent slopes	470.5	66.2%
38	Purves clay, 1 to 8 percent slopes	218.6	30.8%
Totals for Area of Interest		**710.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Blanco and Burnet Counties, Texas

10—Eckert-Rock outcrop complex, 2 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2ynhn
Elevation: 700 to 1,770 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 65 to 68 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Eckert and similar soils: 50 percent
Rock outcrop: 25 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eckert

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 7 inches: very cobbly loam
R - 7 to 40 inches: bedrock

Properties and qualities

Slope: 2 to 20 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 4 to 14 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 0.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R081BY354TX - Very Shallow 23-31 PZ
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

R - 0 to 80 inches: bedrock

Properties and qualities

Slope: 2 to 20 percent
Depth to restrictive feature: 0 to 2 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Harper

Percent of map unit: 13 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R081CY360TX - Low Stony Hill 29-35 PZ
Hydric soil rating: No

Tarpley

Percent of map unit: 12 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R081CY361TX - Redland 29-35 PZ
Hydric soil rating: No

17—Hensley gravelly loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ysnl
Elevation: 650 to 1,600 feet
Mean annual precipitation: 30 to 35 inches
Mean annual air temperature: 65 to 68 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Hensley and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hensley

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 5 inches: gravelly loam
Bt - 5 to 18 inches: clay
R - 18 to 60 inches: bedrock

Properties and qualities

Slope: 1 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R081CY361TX - Redland 29-35 PZ

Hydric soil rating: No

Minor Components

Anhalt

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R081CY358TX - Deep Redland 29-35 PZ
Hydric soil rating: No

Pedernales

Percent of map unit: 8 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R082AY378TX - Tight Sandy Loam 25-32 PZ
Hydric soil rating: No

Hensley, stony

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY361TX - Redland 29-35 PZ
Hydric soil rating: No

Tarpley

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY361TX - Redland 29-35 PZ
Hydric soil rating: No

38—Purves clay, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: dk3b
Elevation: 670 to 1,870 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 65 to 67 degrees F

Frost-free period: 220 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Purves and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Purves

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from limestone

Typical profile

A - 0 to 9 inches: clay
Bk - 9 to 16 inches: cobbly clay
R - 16 to 40 inches: bedrock

Properties and qualities

Slope: 1 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Minor Components

Doss

Percent of map unit: 15 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY574TX - Shallow 29-35 PZ
Hydric soil rating: No

Brackett

Percent of map unit: 8 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY355TX - Adobe 29-35 PZ
Hydric soil rating: No

Tarpley

Percent of map unit: 4 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R081CY361TX - Redland 29-35 PZ
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix – V

Stormwater Runoff Calculations

Stormwater Runoff Calculations - Burnet Quarry

Final Conditions:

DA-1:								
Drainage Area (ac)	10yr-24hr Event (in)	Runoff (ac-ft)	Drainage Area (sf)	Pond Area (sf)	Pond Area (ac)	Pond Depth Req. (ft)	Total Pond Depth Provided (ft)	Total Pond Volume (cf)
100.32	6.5	54.34	4,369,939.20	195,658.40	4.49	12.10	18.0	3521851.2

DA-2A:								
Drainage Area (ac)	10yr-24hr Event (in)	Runoff (ac-ft)	Drainage Area (sf)	Pond Area (sf)	Pond Area (ac)	Pond Depth Req. (ft)	Total Pond Depth Provided (ft)	Total Pond Volume (cf)
65.94	6.5	35.72	2,872,346.40	191361.89	4.39	8.13	20.0	3827237.8

DA-3B:								
Drainage Area (ac)	10yr-24hr Event (in)	Runoff (ac-ft)	Drainage Area (sf)	Pond Area (sf)	Pond Area (ac)	Pond Depth Req. (ft)	Total Pond Depth Provided (ft)	Total Pond Volume (cf)
75.03	6.5	40.64	3,268,306.80	144710.71	3.32	12.23	18.0	2604792.8

Interim Conditions:

DA-2 (2-yr)*:								
Drainage Area (ac)	2yr-24hr Event (in)	Runoff (ac-ft)	Drainage Area (sf)	Pond Area (sf)	Pond Area (ac)	Pond Depth Req. (ft)	Total Pond Depth Provided (ft)	Total Pond Volume (cf)
338.43	2.2	62.05	14,741,967.24	191361.89	4.39	14.12	20.0	3827237.8

*calculated this number using equation 20.44 and a CN value of 82 using NRCS method

Gorman Pits:							
Drainage Area (ac)	10yr-24hr Event (in)	Runoff (ac-ft)	Drainage Area (sf)	Pond Area (sf)	Pond Area (ac)	Pond Depth Req. (ft)	Total Pond Depth Provided (ft)
10.32	6.5	5.59	449,539.20	300564.00	6.90	0.81	1.0

Appendix – VI

ESC Cost Estimate

Engineer's Cost Estimate for Erosion/Sediment Controls

Pay Item	Units	Cost per Unit	Estimate per Pay Item
Stabilized Construction Entrance	1.0	$1500.00	$ 1,500.00
Diversion/interceptor/perimeter dike	3934.9	$4 per linear ft.	$ 15,739.52
[1]Erosion Control Blankets (sq. yds)	9,571.00	$1.34	$ 12,825.14
[1]Erosion Control Blanket Installation	2 people, 2 days	See below[1]	$ 1,200.00
Silt Fence (L Ft.)	10,115.01	$3.00	$ 30,345.03
Reinforced Rock Berms (Linear Ft)	620	$30.00	$ 18,600.00
[2]Seed Mixture (per acre)	57.00	$723.20	$ 41,222.40
[2]Seed Application (labor + equip rental)	5 days	See below[2]	$ 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
Concrete washout	1	$1000.00	$ 1,000.00
		Subtotal:	*$ 133,032.09*
		10% Contingency:	$ 13,303.21
		TOTAL	**$ 146,335.30**

[1]Erosion Control Blanket quantity is based on application for stabilization of the plant pad 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.

[2]Seed and Application assumes the following:

- 57-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. Current price estimates used in Table 1 below are based on Turner Seed Company's 2025 Spring Price List (attached);
- Approximately $1,500.00 estimated equipment rental for one week; and
- One person working 8 hours/day for one week at $25/hour.

[3]Water 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.

Table 1. Example of Year-Round Permanent, Native Seed Mix

Species	Pounds per acre	Price per pound	Subtotal per acre
Sideoats grama (*Bouteloua curtipendula*)	2.0	$30.00	$60.00
Buffalograss (*Bouteloua dactyloides*)	1.4	$30.00	$42.00
Canadian wildrye (*Elymus canadensis*)	1.4	$10.00	$14.00
Green sprangletop (*Leptochloa dubia*)	2.6	$16.00	$41.60
Mexican hat (*Ratibida columnifera*)	1.0	$20.00	$20.00
Little bluestem (*Schizachyrium scoparium*)	1.8	$12.00	$21.60
Purple threeawn (*Aristida purpurea*)	1.4	$16.00	$22.40
Silver bluestem (*Bothrichloa laguroides*)	6.0	$80.00	$480.00
Indiangrass, Cheyenne (*Sorghastrum nutans*)	1.8	$12.00	$21.60
		Total Estimated Cost/Acre =	**$723.20**
		Total Estimated Cost (assumes 57 acres) =	**$ 41,222.40**

From the Water Quality Management Technical Manual:

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 (Avena sativa)	21.0
		Wheat (Red, Winter) (Triticum aestivum)	30.0
		Total	**51.0**
Oct 1 to Mar 30	Temporary Cool Season	Cereal Rye (Secale cereale)	70.0
May 15 to Aug 31	Temporary Warm Season	Foxtail Millet (Setaria italica)	30.0

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

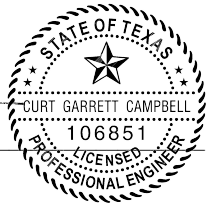
Dates	Climate	Species (lb/ac)	
Year Round	Permanent Cool/Warm Season (Native Species)	Purple three-awn (Aristida purpurea)	1.4
		Sideoats grama (Bouteloua curtipendula)	2.0
		Silver bluestem (Bothriochloa laguroides)	6.0
		Buffalograss (Buchloe dactyloides)	1.4
		Canadian wildrye (Elymus Canadensis)	1.4
		Engelmann's daisy (Engelmannia pinnatifida)	0.6
		Green sprangletop (Leptochloa dubia)	2.6
		Mexican hat (Ratibida columnifera)	1.0
		Little bluestem (Schizachyrium scoparium)	1.8
		Indiangrass (Sorghastrum nutans)	1.8
		Texas Wintergrass (Nassella leucotricha)	15.0
		Total	**35.0**
Mar 30 to Oct 1	Permanent Warm Season	Bermuda (Cynodon dactylon)(hulled)	45.0
Oct 1 to Mar 30	Permanent Cool/Warm Season	Bermuda (Cynodon dactylon) (unhulled)	70.0
		Cereal Rye (Secale cereale)	90.0
		Total	**160.0**

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

Signature of Registered Professional Engineer

Date: 3/21/2025

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



2025 SPRING PRICE LIST

www.turnerseed.com

J Mercer - j@turnerseed.com
Jesse Speer - jesse@turnerseed.com
Luke Turner - luke@turnerseed. com
Blair Vick - blair@turnerseed.com

254-559-2065

TURNER SEED COMPANY • P.O. BOX 791 • BRECKENRIDGE, TEXAS 76424
PHONE: 254-559-2065 • TOLL FREE: 800-722-8616 • FAX: 254-559-5024
www.turnerseed.com

2025 GRASS SEEDS

Bluestems		Price	Unit
Big Bluestem	Kaw	$12.00	PLS
Broomsedge Bluestem	Native	OUT	PLS
Bushy Bluestem	Native	OUT	PLS
Cane Bluestem	Native	OUT	PLS
Little Bluestem	Aldous	$13.00	PLS
Little Bluestem	Cimarron	$14.00	PLS
Little Bluestem	Coastal Plains	$66.00	PLS
Little Bluestem	Native	$12.00	PLS
Little Bluestem	OK Select	$18.00	PLS
Old World Bluestem	T-587	$33.00	PLS
Old World Bluestem	WW-B Dahl	$33.00	PLS
Old World Bluestem	WW-Spar	ASK	PLS
Sand Bluestem	Native	$20.00	PLS
Silver Bluestem	Santiago Germplasm	$80.00	PLS
Splitbeard Bluestem	Native	$60.00	PLS

Cool Season Grasses		Price	Unit
Annual Ryegrass	Beef Builder	$42.50	50# Bag
Annual Ryegrass	Gulf	$40.00	50# Bag
Canada Wildrye	Lavaca	$22.00	PLS
Canada Wildrye	Native	$10.00	PLS
Creeping Red Fescue	Boreal	$2.00	LB
Indian Ricegrass	Native	$30.00	PLS
Little Barley	Cibolo	$21.00	PLS
Perennial Ryegrass	Pure Sport	$100.00	50# Bag
Tall Fescue	Camelot	$100.00	50# Bag
Tall Fescue	Kentucky 31	$75.00	50# Bag
Tall Fescue	Sungold GLX	$100.00	50# Bag
Tall Wheatgrass	Jose	$4.00	PLS
Virginia Wildrye	Native	$9.00	PLS
Western Wheatgrass	Native	$12.00	PLS

Grama Grasses		Price	Unit
Blue Grama	Alma	$20.00	PLS
Blue Grama	Native	$19.00	PLS
Buffalograss	Texoka	$28.00	PLS
Buffalograss	Timeless	$30.00	PLS
Sideoats Grama	El Reno	$25.00	PLS
Sideoats Grama	Haskell	$30.00	PLS

Indiangrass		Price	Unit
Indiangrass	Cheyenne	$12.00	PLS
Indiangrass	Lometa	OUT	PLS

Lovegrass		Price	Unit
Lehman Lovegrass	Variety Not Stated	OUT	PLS
Sand Lovegrass	Bend	$24.00	PLS
Teff Lovegrass	Variety Not Stated	$3.00	LB
Weeping Lovegrass	Ermello	$15.00	PLS
Wilman Lovegrass	Variety Not Stated	$16.00	PLS

Miscellaneous Grasses		Price	Unit
Alkali Sacaton	Native	$25.00	PLS
Arizona Cottontop	Native	OUT	PLS
Bahiagrass	Pensacola	$5.00	LB
Buffelgrass	Common	ASK	PLS
Common Barnyard Grass	Echinochloa crus-galli	$6.00	LB
Crabgrass	Red River	$6.00	PLS
Curly Mesquite	Native	OUT	PLS
Eastern Gamagrass	Native	OUT	PLS
Galleta	Viva	$47.00	PLS
Green Sprangletop	Van Horn	$7.00	PLS
Hooded Windmillgrass	Burnett Germplasm	$85.00	PLS
Inland Sea Oats	Native	$120.00	PLS
Johnsongrass	Variety Not Stated	OUT	LB
Plains Bristlegrass	Native	$16.00	PLS
Purple Threeawn	Native	$16.00	PLS
Purpletop	Native	$40.00	PLS
Rough Barnyard Grass	(Echinochloa muricata)	$15.00	LB
Sand Dropseed	Native	$10.00	PLS
Sand Dropseed	Taylor Germplasm	ASK	PLS
Sorghum Almum	Variety Not Stated	ASK	PLS
White Tridens	Guadalupe Germplasm	$100.00	PLS

Panicums		Price	Unit
Kleingrass	Selection 75	$13.00	PLS
Switchgrass	Alamo	$14.00	PLS
Switchgrass	Blackwell	$11.00	PLS
Texas Panicum	Native	OUT	PLS

Pasture Bermudagrass		Price	Unit
Bermudagrass	Common (Hulled)	$9.00	LB
Bermudagrass	Common (Unhulled)	$6.00	LB
Bermudagrass	Giant	ASK	LB
Buckaroo Blend	Chilly Verde, Giant & Jacob	$12.00	LB
Texas Tough Blend	Giant, Forage Max & Majestic	ASK	LB

Turf Grasses		Price	Unit
Bermudagrass	Blackjack (Coated)	$7.50	LB
Bermudagrass	Common (Hulled)	$9.00	LB
Bermudagrass	Common (Unhulled)	$6.00	LB
Bermudagrass	Maya (Coated)	$7.50	LB
Bermudagrass	Sahara 2	ASK	LB
Buffalograss	Timeless	$30.00	LB
Perennial Ryegrass	Pure Sport	$100.00	50# Bag
Tall Fescue	Camelot	$100.00	50# Bag
Tall Fescue	Sungold GLX	$100.00	50# Bag
Turner Turf	Buffalograss 70% Blue Grama 30%	$24.00	LB
Turner Turf 3	Buffalograss 70% Blue Grama 28% Curly Mesquite 2%	$26.00	LB

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2025 WILDLIFE & FORB SEEDS

Clovers		Price	Unit
Alyce Clover	Variety Not Stated	$3.50	LB
Arrowleaf Clover	Zulu 2	$2.50	LB
Balansa Clover	Fixation	$2.25	LB
Ball Clover	Variety Not Stated	OUT	LB
Berseem Clover	Frosty	$3.50	LB
Crimson Clover (Coated)	Kentucky Pride	$2.00	LB
Crimson Clover (Raw)	Kentucky Pride	$2.25	LB
Persian Clover	eNhance	$2.50	LB
Red Clover	Dynamite	ASK	LB
Red Clover	Kenland	$5.00	LB
Spineless Burr Medic Clover	Cavalier	$5.00	LB
White Clover	Dutch	$6.00	LB
White Sweet Clover	Hubam	$3.50	LB
White Sweet Clover	Silver River	$3.50	LB
Yellow Blossom Sweet Clover	Variety Not Stated	$3.25	LB

Forb Mix		
Illinois Bundleflower (Sabine)		10.0%
Sweet Clover (Silver River)		10.0%
Blackeyed Susan		9.0%
Clasping Coneflower		9.0%
Indian Blanket		9.0%
Lanceleaf Coreopsis		9.0%
Partridge Pea		9.0%
Plains Coreopsis		9.0%
Purple Prairie Clover		9.0%
White Prairie Clover		5.0%
Awnless Bushsunflower (Plateau)		3.0%
Common Annual Sunflower		3.0%
Maximilian Sunflower (Aztec)		3.0%
Purple Coneflower		3.0%
Cost Per Acre	$84.00	
Cost Per PLS Lb.	$12.00	100%
PLS Pounds Per Acre	7.00	

Legumes		Price	Unit
Aeschynomene	(American Joint Vetch)	$5.50	LB
Alfalfa	Ladak	$4.75	LB
Alfalfa (Coated & Inoculated)	L-602	$5.00	LB
Alfalfa (Raw & Inoculated)	L-602	$6.00	LB
Cowpea	Ace	$1.50	LB
Cowpea	Blackeye	$2.00	LB
Cowpea	Iron & Clay	$1.00	LB
Cowpea	Red Ripper	$1.00	LB
Hairy Vetch	Variety Not Stated	$2.00	LB
Illinois Bundleflower	Native	$6.00	PLS
Lab Lab	Variety Not Stated	$2.50	LB
Mungbean	Variety Not Stated	$2.00	LB
Partridge Pea	Native	$16.00	PLS
Purple Prairie Clover	Native	$18.00	PLS
Soybean	Laredo	$1.50	LB
Sunn Hemp	Variety Not Stated	$2.00	LB
White Prairie Clover	Native	$40.00	PLS

Lespedeza		Price	Unit
Korean Lespedeza	Variety Not Stated	$3.50	LB
Sericea Lespedeza	Variety Not Stated	$4.50	LB
Roundhead Lespedeza	Native	$95.00	PLS

Millets		Price	Unit
Browntop Millet	Variety Not Stated	$50.00	50# Bag
Foxtail Millet	German R	$50.00	50# Bag
Foxtail Millet	Scotty Fox	$75.00	50# Bag
Hybrid Pearl Millet	Variety Not Stated	$90.00	50# Bag
Japanese Millet	Variety Not Stated	$50.00	50# Bag
Proso Millet	Dove	$75.00	50# Bag

Other Forbs		Price	Unit
Buckwheat	Variety Not Stated	$50.00	50# Bag
Chicory	Variety Not Stated	$4.50	LB
Chufas	Variety Not Stated	$1.75	LB
Daikon Radish	Driller	$2.00	LB
Engelmann Daisy	Eldorado	OUT	PLS
Fourwing Saltbush	Native	$13.50	PLS
Okra	Clemson Spineless	$1.50	LB
Pennsylvania Smartweed	Variety Not Stated	$22.00	LB
Winter Rape	Variety Not Stated	$38.00	50# Bag
Sesame	Variety Not Stated	$3.75	LB
Turnips	Purpletop	$2.00	LB

Other Grasses		Price	Unit
Hybrid Grain Sorghum	W-844-E	$2.50	LB
Rice	Variety Not Stated	$23.00	50# Bag
Sorghum	Egyptian Wheat	$2.00	LB
Sorghum	Early Sumac (Red Top)	$40.00	50# Bag
Sorghum	Hegari	$35.00	50# Bag
Sorghum Almum	Variety Not Stated	$2.50	LB

Sunflowers		Price	Unit
Awnless Bushsunflower	Plateau	$45.00	PLS
Hybrid Oil Sunflower	SF CP Sportsman	$3.50	LB
Maximilian Sunflower	Native	$22.00	PLS
Native Sunflower (Common Annual)	Native	$10.00	PLS
Peredovick Sunflower	Variety Not Stated	$50.00	50# Bag

Seeders-Fertilizers-Etc.		
20-10-5 Fertilizer	50 Lb. Sack	$23.00
33-0-0 Fertilizer	50 Lb. Sack	$23.00
6-3-0 Fertilizer	50 Lb. Sack	$12.00
Broadcast Seeder	Hand	$38.00
Broadcast Seeder	PTO	ASK
Inoculant	Clover & Alfalfa	$8.00
Inoculant	Cowpea - Sunn Hemp - Peanuts	$8.00
Inoculant	Pea - Vetch - Lentils	$8.00

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2025 GRASS & OTHER SEED MIXES

Bluestem Mix Non Sandy		
Little Bluestem		45.0%
Indiangrass		25.0%
Switchgrass (Blackwell)		25.0%
Big Bluestem		5.0%
Cost Per Acre	$46.80	
Cost Per PLS Lb.	$12.00	100.0%
PLS Pounds Per Acre	3.90	

Bluestem Mix Sandy		
Little Bluestem		45.0%
Switchgrass (Blackwell)		20.0%
Indiangrass		15.0%
Sideoats Grama (Haskell)		10.0%
Big Bluestem		10.0%
Cost Per Acre	$52.00	
Cost Per PLS Lb.	$13.00	100.0%
PLS Pounds Per Acre	4.00	

Hardland Grass Seed Mix		
Kleingrass (Selection 75)		25.0%
Willman Lovegrass		25.0%
WW-B Dahl Bluestem		20.0%
Sideoats Grama		20.0%
Green Sprangletop (Van Horn)		10.0%
Cost Per Acre	$47.50	
Cost Per PLS Lb.	$19.00	100.0%
PLS Pounds Per Acre	2.50	

Pipeline Mix		
Kleingrass (Selection 75)		15.0%
Wilman Lovegrass		15.0%
Green Sprangletop (Van Horn)		10.0%
Sideoats Grama		10.0%
Tall Wheatgrass		10.0%
Annual Ryegrass		7.0%
Foxtail Millet		7.0%
Hooded Windmillgrass (Burnet Germplasm)		5.0%
Silver Bluestem		5.0%
Teff Lovegrass		5.0%
WW-Spar Bluestem		5.0%
Canadian Wildrye		3.0%
Virginia Wildrye		3.0%
Cost Per Acre	$70.00	
Cost Per PLS Lb.	$7.00	100.0%
PLS Pounds Per Acre	10.00	

SOL Mix		
Blue Grama		50.0%
Hooded Windmillgrass		14.0%
Sand Dropseed		12.0%
Sideoats Grama		12.0%
Buffalograss		11.0%
Curly Mesquite		1.0%
Cost Per Acre	$70.00	
Cost Per PLS Lb.	$28.00	100.0%
PLS Pounds Per Acre	2.50	

Sandyland Grass Seed Mix		
Wilman Lovegrass		25.0%
Plains Bristlegrass		15.0%
Switchgrass (Blackwell)		15.0%
Green Sprangletop		10.0%
Indiangrass		10.0%
Little Bluestem		10.0%
Sideoats Grama (Haskell)		10.0%
Big Bluestem		5.0%
Cost Per Acre	$47.85	
Cost Per PLS Lb.	$14.50	100.0%
PLS Pounds Per Acre	3.30	

Tank Dam Mix		
Annual Ryegrass		35.0%
Bermudagrass		10.0%
Tall Fescue		10.0%
Foxtail Millet (German)		8.0%
Teff Lovegrass		6.0%
Crabgrass		5.0%
Kleingrass (Selection 75)		5.0%
Sideoats Grama		5.0%
Wilman Lovegrass		5.0%
WW-Spar Bluestem		5.0%
Blue Grama		3.0%
Hooded Windmillgrass (Burnet Germplasm)		2.0%
Silver Bluestem (Santiago Germplasm)		1.0%
Cost Per Acre	$75.00	
Cost Per Lb.	$7.50	100.0%
Pounds Per Acre	10.00	

Texas Native Multi-Site Mix		
Little Bluestem		10.0%
Illinois Bundleflower		10.0%
Blue Grama		9.0%
Indiangrass		9.0%
Switchgrass (Blackwell)		9.0%
Indian Blanket		4.5%
Big Bluestem		3.0%
Canada Wildrye		3.0%
Green Sprangletop (Van Horn)		3.0%
Hooded Windmillgrass		3.0%
Plains Bristlegrass		3.0%
Sand Dropseed		3.0%
Sideoats Grama		3.0%
Silver Bluestem		3.0%
Virginia Wildrye		3.0%
Western Wheatgrass		3.0%
Awnless Bushsunflower (Plateau)		2.5%
Blackeyed Susan		2.5%
Plains Coreopsis		2.5%
Purple Prairie Clover		2.0%
White Prairie Clover		2.0%
Partridge Pea		2.0%
Buffalograss (Texoka)		1.0%
Inland Sea Oats		1.0%
Maximilian Sunflower (Aztec)		1.0%
Purpletop		1.0%
Sand Lovegrass		1.0%
Cost Per Acre	$77.00	
Cost Per PLS Lb.	$14.00	100.0%
PLS Pounds Per Acre	5.50	

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2025 WILDLIFE SEED MIXES & FOOD PLOTS

Native Perennial Wildlife Mix		
Switchgrass (Blackwell)		14.0%
Little Bluestem		12.0%
Plains Bristlegrass		12.0%
Sideoats Grama		12.0%
Green Sprangletop (Van Horn)		10.0%
Illinois Bundleflower (Sabine)		10.0%
Sweet Clover (Silver River)		10.0%
Purple Prairie Clover		8.0%
Indiangrass (Cheyenne)		5.0%
Awnless Bushsunflower (Plateau)		3.0%
Partridge Peas		3.0%
Maximillian Sunflower (Aztec)		1.0%
Cost Per Acre	$61.60	
Cost Per PLS Lb.	$11.00	100.0%
PLS Pounds Per Acre	5.60	

Pollinator Mix		
Illinois Bundleflower (Sabine)		12.0%
Sweet Clover (Silver River)		12.0%
Green Sprangletop (Van Horn)		10.0%
Blackeyed Susan		7.0%
Indian Blanket		7.0%
Plains Coreopsis		7.0%
Awnless Bushsunflower (Plateau)		5.0%
Blue Grama		5.0%
Clasping Coneflower		5.0%
Gayfeather		5.0%
Hooded Windmillgrass		5.0%
Partridge Peas		5.0%
Purple Prairie Clover		5.0%
Sideoats Grama		5.0%
Maximilian Sunflower (Aztec)		3.0%
White Prairie Clover		2.0%
Cost Per Acre	$72.80	
Cost Per PLS Lb.	$13.00	100.0%
PLS Pounds Per Acre	5.60	

Spring Quail & Turkey Mix		
Browntop Millet		15.0%
Buckwheat		15.0%
Foxtail Millet (German R)		15.0%
Hybrid Grain Sorghum		15.0%
Cowpea (Ace)		10.0%
Proso Millet (Dove)		10.0%
Hybrid Oil Sunflower		5.0%
Hybrid Pearl Millet		5.0%
Okra		5.0%
Soybean		5.0%
Cost Per Acre	$30.00	
Cost Per Lb.	$1.50	100.0%
Pounds Per Acre	20.00	

Spring Deer Mix		
Cowpeas (Ace)		25.0%
Cowpeas (Iron & Clay)		10.0%
Cowpeas (Red Ripper)		10.0%
Lab Lab		10.0%
Okra (Spineless)		10.0%
Soybeans		10.0%
Sunn Hemp		10.0%
Buckwheat		5.0%
Chicory		5.0%
Cowpea (California Blackeye)		5.0%
Cost Per Acre	$35.00	
Cost Per Lb.	$1.75	100.0%
Pounds Per Acre	20.00	

Spring Dove Mix		
Browntop Millet		25.0%
Foxtail Millet (German R)		25.0%
Hybrid Black Oil Sunflower		20.0%
Hybrid Grain Sorghum		20.0%
Sesame		10.0%
Cost Per Acre	$40.00	
Cost Per Lb.	$2.00	100.0%
Pounds Per Acre	20.00	

Texas Perennial Wildlife Mix		
Kleingrass (Selection 75)		15.0%
Sweet Clover (Silver River)		15.0%
Wilman Lovegrass		15.0%
Plains Bristlegrass		12.0%
Switchgrass (Blackwell)		12.0%
Green Sprangletop (Van Horn)		10.0%
Illinois Bundleflower (Sabine)		10.0%
Purple Prairie Clover		5.0%
Partridge Peas		4.0%
Awnless Bushsunflower (Plateau)		1.0%
Maximillian Sunflower (Aztec)		1.0%
Cost Per Acre	$42.00	
Cost Per PLS Lb.	$8.00	100.0%
PLS Pounds Per Acre	5.25	

Waterfowl Mix		
Japanese Millet		25.0%
Browntop Millet		20.0%
Rice		20.0%
Buckwheat		15.0%
Hybrid Grain Sorghum		10.0%
Barnyard Grass		5.0%
Smartweed		5.0%
Cost Per Acre	$45.00	
Cost Per Lb.	$2.25	100.0%
Pounds Per Acre	20.00	

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MIXES ONLY **NEW ITEM**

2025 SPRING WILDFLOWER MIXES - *$30 PER POUND*

PRICES ARE SUBJECT TO CHANGE DUE TO AVAILABILITY

Texas Native Wildflower Mix

Common Name	% By Weight	Season	Bloom Period	Longevity	Bloom Color
Black-Eyed Susan	10%	Warm	May - November	ABP	Yellow
Clasping Coneflower	10%	Warm	May - June	Annual	Yellow/Dark Red
Common Milkweed	1%	Warm	May - August	Perennial	Pink
Drummond Phlox	1%	Cool	February - June	Annual	Red
Gayfeather	8%	Warm	August - December	Perennial	Purple
Greenthread	1%	Cool	February - December	AP	Yellow/Dark Red
Indian Blanket	25%	Warm	February - December	Annual	Red/Yellow
Lemon Mint	5%	Warm	April - October	Annual	Purple
Mealy Blue Sage	1%	Warm	April - November	Perennial	Purple/Blue
Mexican Hat	1%	Warm	March - November	Perennial	Yellow/Dark Red
Missouri Primrose	1%	Warm	April - August	Perennial	Yellow
Plains Coreopsis	10%	Warm	April - June	Annual	Yellow/Dark Red
Prairie Coneflower	1%	Warm	March - November	Perennial	Yellow
Purple Coneflower	6%	Warm	May - June	Perennial	Purple
Purple Prairie Clover	9%	Warm	June - July	Perennial	Purple
Scarlet Sage	1%	Warm	March - December	Perennial	Red
Showy Evening Primrose	5%	Cool	February - July	Perennial	Pink
Showy Milkweed	1%	Warm	May - June	Perennial	Pink
White Prairie Clover	1%	Warm	June - August	Perennial	White
White Yarrow	1%	Cool	April - June	Perennial	White
Wild Bergamot	1%	Warm	June - September	Perennial	Pink

Starburst Wildflower Mix

Common Name	% By Weight	Season	Bloom Period	Longevity	Bloom Color
Bachelor's Button	5%	Cool	March - May	Annual	Blue
Bird's Foot Trefoil	4%	Warm	June - August	Perennial	Yellow
Black-Eyed Susan	5%	Warm	May - November	ABP	Yellow
Blue Flax	4%	Warm	May - June	Perennial	Light Blue
California Poppy	12%	Cool	February - September	Annual	Orange
Clasping Coneflower	4%	Warm	May - June	Annual	Yellow/Dark Red
Common Milkweed	1%	Warm	May - August	Perennial	Pink
Corn Poppy	5%	Cool	March - July	Annual	Red
Cosmos	10%	Warm	May - November	Annual	Red/Pink
Drummond Phlox	1%	Cool	February - June	Annual	Red
False Sunflower	1%	Warm	June - September	Perennial	Yellow
Gayfeather	4%	Warm	August - December	Perennial	Purple
Golden Mane Tickseed	1%	Warm	June - July	Annual	Yellow/Dark Red
Grayhead Coneflower	1%	Warm	May - September	Perennial	Yellow
Greenthread	1%	Cool	February - December	A/P	Yellow
Indian Blanket	4%	Warm	February - December	Annual	Red/Yellow
Lanceleaf Coreopsis	8%	Warm	May - August	Perennial	Yellow
Lemon Mint	5%	Warm	April - October	Annual	Purple
Mealy Blue Sage	1%	Warm	April - November	Perennial	Purple/Blue
Mexican Hat	1%	Warm	March - November	Perennial	Yellow/Dark Red
Missouri Primrose	1%	Warm	March - November	Perennial	Yellow
Moss Verbena	1%	Warm	March - July	ABP	Purple
Pale Purple Coneflower	1%	Warm	May - June	Perennial	Purple
Plains Coreopsis	5%	Warm	April - June	Annual	Yellow/Dark Red
Prairie Coneflower	1%	Warm	March - November	Perennial	Yellow
Purple Coneflower	1%	Warm	May - June	Perennial	Purple
Purple Prairie Clover	1%	Warm	June - July	Perennial	Purple
Scarlet Flax	1%	Warm	May - July	Annual	Red
Scarlet Sage	1%	Warm	March - December	Perennial	Red
Showy Evening Primrose	5%	Cool	February - July	Perennial	Pink
Showy Milkweed	1%	Warm	May - June	Perennial	Pink
White Prairie Clover	1%	Warm	June - August	Perennial	White
White Yarrow	1%	Cool	April - June	Perennial	White
Wild Bergamot	1%	Warm	June - September	Perennial	Pink

SEEDING RATE PER ACRE = 8 TO 10 LBS. PER ONE THOUSAND SQUARE FEET = 1/5 TO 1/2 LB.
ALWAYS SOW ON FRESHLY DISTURBED SOIL. SEVEN TIMES THE DIAMETER OF ANY SEED IS MAXIMUM DEPTH TO PLANT THE SEED!

2025 WILDFLOWERS

Common Name	Genus	Species	Planting Rate	Price Per Pound	Longevity	Season	Bloom Period	Bloom Color
American Basketflower	Centaurea	americana	10	$80.00	Annual	Warm	May - June	Purple
Bachelor's Button	Centaurea	cyanus	4	$10.00	Annual	Cool	March - May	Blue
Bird's Foot Trefoil	Lotus	corniculatus	8 - 10	$7.50	Perennial	Warm	June - August	Yellow
Black-Eyed Susan	Rudbeckia	hirta	1 - 2	$15.00	ABP	Warm	May - Oct	Yellow
Blanketflower	Gaillardia	aristata	5	$25.00	Perennial	Warm	July - Sept	Red/Yellow
Blue Flax	Linum	lewisii	8	$20.00	Perennial	Warm	May - June	Light Blue
Butterfly Milkweed	Asclepias	tuberosa	10	$250.00	Perennial	Warm	April - Sept	Orange
California Poppy	Eschscholzia	californica	8	$26.00	Annual	Cool	Feb - Sept	Orange
Clasping Coneflower	Dracopis	amplexicaulis	2 - 3	$18.00	Annual	Warm	May - June	Yellow/Dark Red
Common Milkweed	Asclepias	syriaca	8	$110.00	Perennial	Warm	May - August	Pink
Corn Poppy	Papaver	rhoeas	2	$25.00	Annual	Cool	March - July	Red
Cosmos	Cosmos	bipinnatus	15	$16.00	Annual	Warm	May - Nov	Red/Pink
Cutleaf Evening Primrose	Oenothera	laciniata	1	$22.00	Annual	Cool	May - Sept	Yellow
Drummond Phlox	Phlox	drummondii	8	$50.00	Annual	Cool	Feb - June	Red
False Sunflower	Heliopsis	helianthoides	9	$22.00	Perennial	Warm	June - Sept	Yellow
Gayfeather	Liatris	spicata	5	$60.00	Perennial	Warm	August - Dec	Purple
Golden Mane Tickseed	Coreopsis	basalis	3		Annual	Warm	June - July	Yellow/Dark Red
Grayhead Coneflower	Ratibida	pinnata	3	$65.00	Perennial	Warm	May - Sept	Yellow
Greenthread	Thelesperma	filifolium	6	$50.00	A/P	Cool	Feb - Dec	Yellow/Dark Red
Hoary Vervain	Verbena	stricta	3	OUT	Perennial	Warm	May - Sept	Purple
Indian Blanket	Gaillardia	pulchella	7 - 8	$22.00	Perennial	Warm	Feb - Dec	Red/Yellow
Lanceleafed Coreopsis	Coreopsis	lanceolata	5	$16.00	Perennial	Warm	May - August	Yellow
Lemon Mint	Monarda	citriodora	3	$40.00	Annual	Warm	April - Oct	Purple
Mealy Blue Sage	Salvia	farinacea	8	$75.00	Perennial	Warm	April - Nov	Purple/Blue
Mexican Hat	Ratibida	columnifera	2	$20.00	Perennial	Warm	March - Nov	Yellow/Dark Red
Missouri Primrose	Oenothera	macrocarpa	10	$40.00	Perennial	Warm	April - August	Yellow
Moss Verbena	Verbena	tenuisecta	6	$50.00	A/P	Warm	March - July	Purple
Pale Purple Coneflower	Echinacea	pallida	12	$22.00	Perennial	Warm	May - August	Purple
Plains Coreopsis	Coreopsis	tinctoria	1 - 2	$12.00	Annual	Warm	April - June	Yellow/Dark Red
Prairie Coneflower	Ratibida	columnifera	2	$20.00	Perennial	Warm	March - Nov	Yellow
Purple Coneflower	Echinacea	purpurea	12	$28.00	Perennial	Warm	May - June	Purple
Scarlet Flax	Linum	rubrum	8	$35.00	Annual	Warm	May - July	Red
Scarlet Sage	Salvia	coccinea	5	$40.00	Perennial	Warm	March - Dec	Red
Showy Evening Primrose	Oenothera	speciosa	1	$50.00	Perennial	Cool	Feb - July	Pink
Showy Milkweed	Asclepias	speciosa	8	$150.00	Perennial	Warm	May - June	Pink
Tahoka Daisy	Machaeranthera	tanacetifolia	5	$140.00	Annual	Cool	May - Oct	Purple
White Yarrow	Achillea	millefolium	1	$30.00	Perennial	Cool	April - June	White
Wild Bergamot	Monarda	fistulosa	1	$80.00	Perennial	Warm	June - Sept	Pink
Zinnia	Zinnia	elegans	9	$20.00	Annual	Warm	May - Nov	Multiple

SPECIES NATIVE TO TEXAS

"Has anyone by fussing before the mirror ever gotten taller by so much as an inch? If fussing can't even do that, why fuss at all? Walk into the fields and look at the wildflowers. They don't fuss with their appearance. But have you ever seen color and design quite like it? The ten best dressed men and women in the courntry look shabby alongside them. If God gives such attention to the wildflowers, most of them never even seen, don't you think he'll attend to you, take pride in you, do his best for you?
From "The Message" by Eugene H. Peterson, Luke 12:25-28

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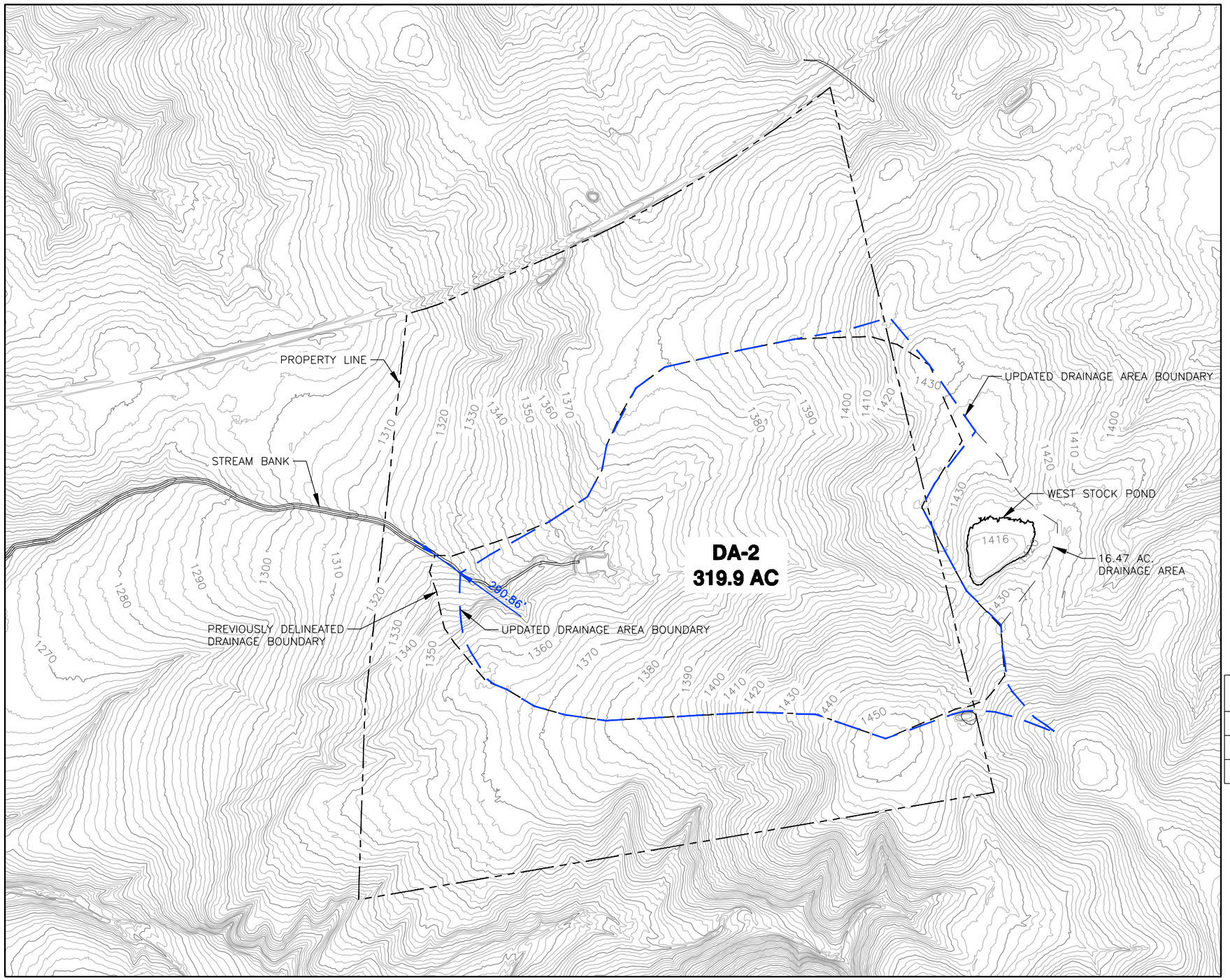
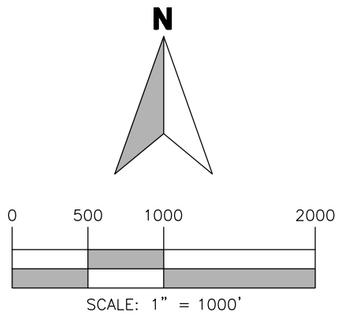
Appendix – VII

Buffer Drainage Area Map





LEGEND

- PROPERTY LINE
- 900 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- ORIGINAL DRAINAGE AREAS
- UPDATED DRAINAGE AREAS

NOTE:
IN THE DESIGNED STORM EVENT, THE WEST STOCK POND RETAINS ALL STORMWATER AND DOES NOT OVERFLOW INTO DA-2. SEE STAGE STORAGE TABLE BELOW FOR TOTAL VOLUME OF WEST STOCK POND AND THE CALCULATED RUNOFF CALCULATIONS SHOWING THE AMOUNT OF RUNOFF DRAINING TO THE WEST STOCK POND FOR THE 10-YR 24-HR STORM EVENT.

STAGE STORAGE TABLE (WEST STOCK POND)	
ELEVATION (AMSL)	VOLUME (AC-FT)
1416	0
1417	2.80
1418	6.33
1419	10.78
1420	16.47

WEST STOCK POND - RUNOFF CALCULATIONS	
DRAINAGE AREA (AC.)	16.47
10YR-24HR EVENT (IN.)	6.5
RUNOFF (AC-FT)	8.92

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STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED PROFESSIONAL ENGINEER
Curt G. Campbell, P.E.
License No. 106851
3/21/202

DA-2 EXHIBIT

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

REV.	DESCRIPTION	BY	DATE

IMAGE: N/A

ISSUE DATE:	3/21/2025
DRAWN BY:	WBE
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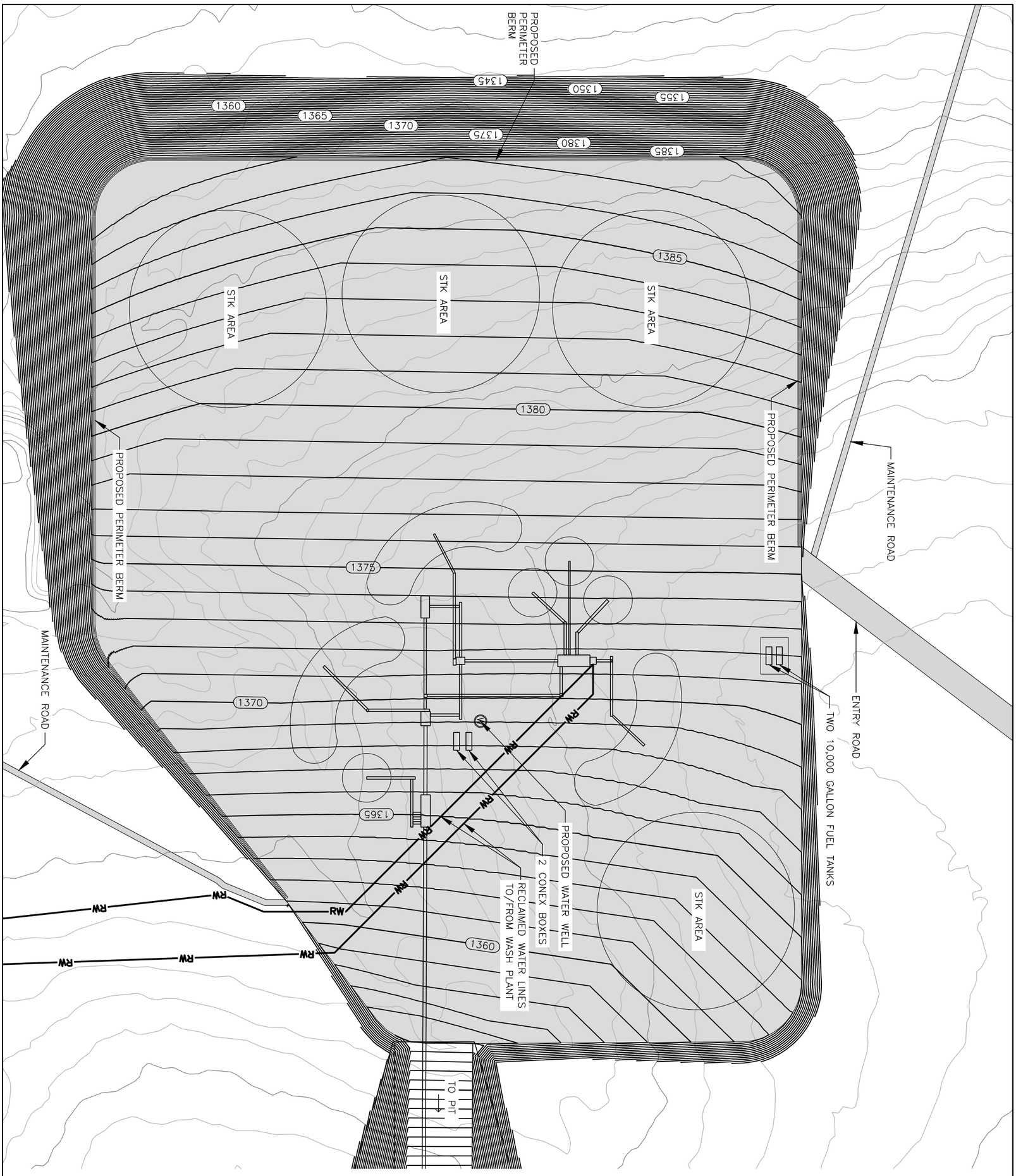
SCALE: 1" =	1000'
JOB NO.:	10853-256

SHEET NO.:
01
OF 01

Appendix – VII

Plant Detail Map



SHEET NO.: 1 OF 1

IMAGE:	N/A
ISSUE DATE:	3/21/2025
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PAD & PLANT AREA EXHIBIT

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Appendix – VII

Erosion Matting Specification

Curlex® Blankets

Excelsior Erosion Control Blankets

American Excelsior Company is the inventor of biodegradable erosion control blankets. Developed in the early 60's, Curlex excelsior blankets are specifically designed to actually promote ideal growing conditions for grass seed, while simultaneously protecting topsoil from wind and water erosion. Curlex excelsior blankets have long passed the test of time. By design, Curlex blankets have a built-in swell factor - wet curled excelsior fibers sightly expand in thickness and interlock to form a strong, fiber matrix. This allows the fibers to provide intimate contact with local terrain. Water flow is trained to follow the curled fiber matrix. The roughness of the curled excelsior matrix slows the velocity to a point where gravity takes over, which allows moisture to slowly seep into the topsoil to promote ideal growing conditions.

Material Characteristics

Curlex blankets consist of unique softly barbed, interlocking, curled, Aspen excelsior fibers. They are weed seed free. Curlex blankets are available with a variety of environmentally sensitive and/or stronger netting types to match job site requirements. We offer a green color-coded plastic netting for applications requiring UV resistance strength and longevity. Our photodegradable QuickMow™ netting is recommended for urban, golf course, and certain roadside projects. It is color-coded white to identify it as a rapid break-down, polypropylene netting designed for use in areas to be mowed. Also available is our FibreNet™ - 100% biodegradable netting - for use in critical environmentally sensitive areas.

Most straight-line fiber blankets draw the line at 270 g/m^2 (.50 lb/yd^2), but not Curlex. At just under 400 g/m^2 (.75 lb/yd^2) Curlex blankets bring 50% more erosion control fibers to your job site. Curlex blankets are available in natural Aspen or QuickGRASS® (green). Combine that with a roll that's wider than conventional blankets and you have today's most effective and efficient, multi-purpose degradable erosion control blanket. Curlex excelsior blankets are available individually wrapped or in master packs to allow for mechanical unloading and stacking.

Performance Capabilities

Product	Slopes	Shear Stress Rating
Curlex I	2H:1V & flatter	84 Pa (1.75 lb/ft^2)
Curlex II	1.5H:1V & flatter	108 Pa (2.25 lb/ft^2)

Typical Applications

- Highway embankments, ditch bottoms and slopes, bridges, approaches and medians
- Residential, commercial, & industrial developments
- Urban drainage, stream banks, and waterways
- Golf course fairways, roughs, waterways, & drop structures
- Landfill caps, side slopes, and let down structures
- Pipeline right-of-ways

American Excelsior Company®
Earth Science Division
Arlington, Texas (800) 777-SOIL • www.curlex.com

MADE IN THE U.S.A.

American Excelsior Company®
Earth Science Division

Curlex® Blankets

Excelsior Erosion Control Blankets

SUGGESTED SPECIFICATIONS

Curlex Single Net (Curlex I)

A specific cut of Great Lakes Aspen curled wood excelsior with 80% six-inch fibers or greater fiber length. It shall be of consistent thickness, with fibers evenly distributed throughout the entire area of the blanket. The top of each blanket shall be covered with photodegradable or biodegradable netting. Material shall not contain any weed seed or chemical additives.

Specifications

Recommended Use:	Slopes to 2:1, Channel to 7 ft/s, shear stress to 1.75 lb/ft^2
Roll Sizes:	4' x 112.5' (50 yd^2), 8' x 112.5' (100 yd^2),16' x 112.5' (200 yd^2)
Standard Weight*:	.73 lb/yd^2
Netting Options:	Green, QuickMow White (90 day), FibreNet
Color:	Natural Aspen or QuickGRASS Green

Curlex Double Net (Curlex II)

A specific cut of Great Lakes Aspen curled wood excelsior with 80% six-inch fibers or greater fiber length. It shall be of consistent thickness, with fibers evenly distributed throughout the entire area of the blanket. The top and bottom of each blanket shall be covered with photodegradable or biodegradable netting. Material shall not contain any weed seed or chemical additives.

Specifications

Recommended Use:	Slopes to 1.5:1, Channels to 9 ft/s, shear stress to 2.25 lb/ft
Roll Sizes:	4' x 112.5' (50 yd^2), 8' x 112.5' (100 yd^2),16' x 112.5' (200 yd^2)
Standard Weight*:	.73 lb/yd^2
Netting Options:	Green, QuickMow White (90 day), FibreNet
Color:	Natural Aspen or QuickGRASS Green

*Weight is based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen Excelsior is 22%.

Installation

Before installing Curlex blankets, the seedbed shall be inspected by the Owner's Representative to ensure it has been properly compacted and fine graded to remove any existing rills. It shall be free of obstructions, such as tree roots, projections such as stones, and other foreign objects. Grass seed shall match soil conditions to allow for maximum germination, dense vegetation, and a structural root system. Contractor shall proceed when satisfactory conditions are present. After the area has been properly shaped, seeded, fertilized, and compacted, locate the start of the roll, making sure the roll is facing toward the area to be covered, and then roll out the blanket. Blankets shall be rolled out flat, even, and smooth without stretching the material then anchored to the subgrade.

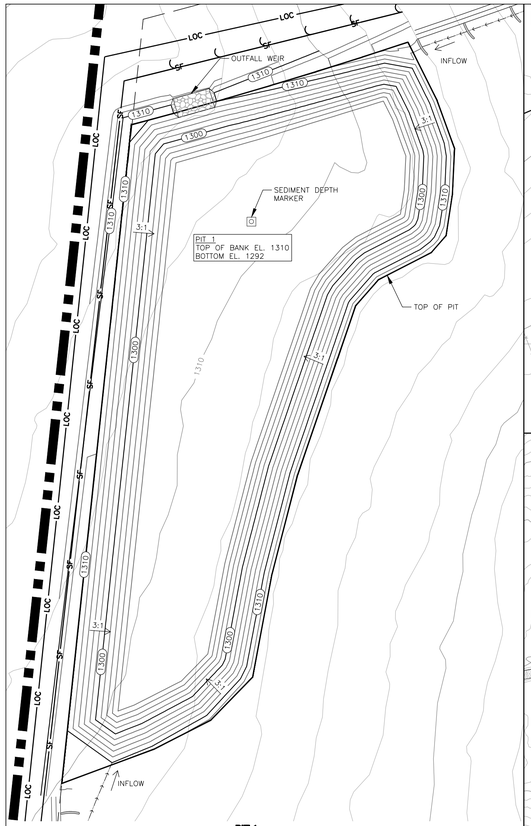
Slopes: It is recommended that the blankets be installed in the same direction as the water flow; however, on short slopes it may be more practical to install horizontally across the width of the application. If more than one width is required, simply abut the edges together and secure the blankets with a common row of biodegradable staples, steel staples, or stakes. Overlapping of Curlex excelsior blankets is not required or recommended. An exception is waterway slopes.

Channels: Curlex blankets shall be centered to offset a seam in the middle of the waterway. They shall be installed in the same direction as the water flow. The adjoining blankets shall be installed away from the center of channel and concentrated water flow. They shall be secured by a common row of staples. It is usually not necessary to overlap Curlex blankets; however, a 2" shingle type installation shall be used in waterway slopes applications. Curlex blanket installation should continue up the side slopes 3' above the anticipated high water elevation. Flanks exposed to runoff, or sheet flow, must be protected by a check slot or trenched. Curlex blankets shall be trenched at the start of the channel and anchored using a staggered staple pattern at end of roll overlaps and end of roll terminations.

MADE IN THE U.S.A.

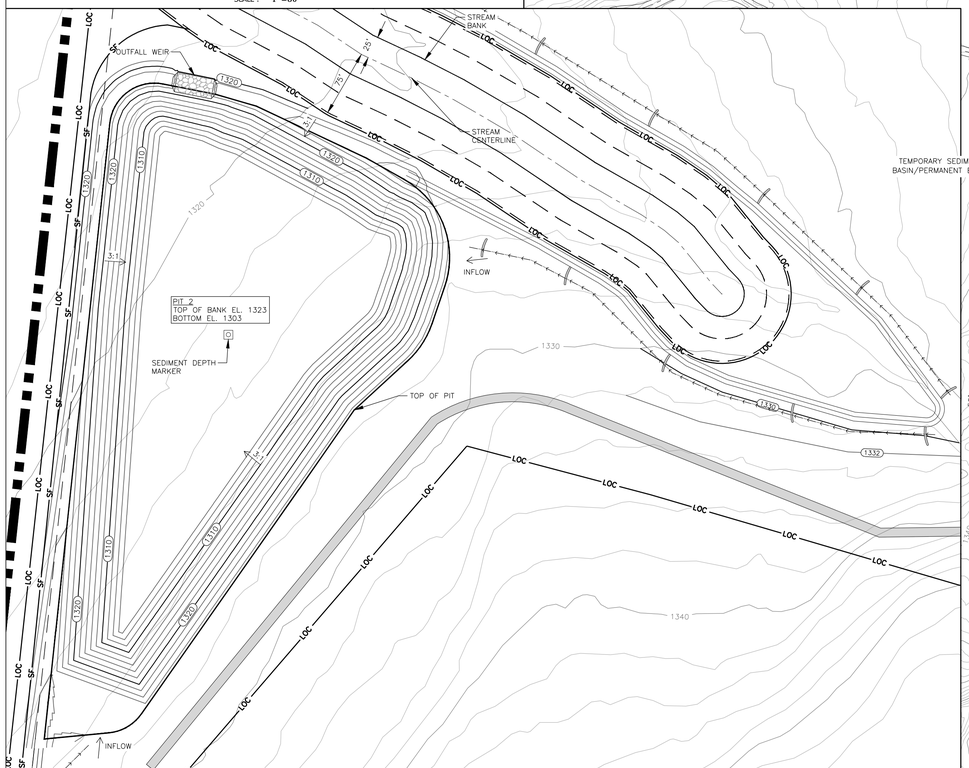
If you would like to receive more information or consult with one of our Customer Care Center Specialists, please call us toll free at (888-352-9582)

PDF download specifications available in the Technical Support Library at www.curlex.com

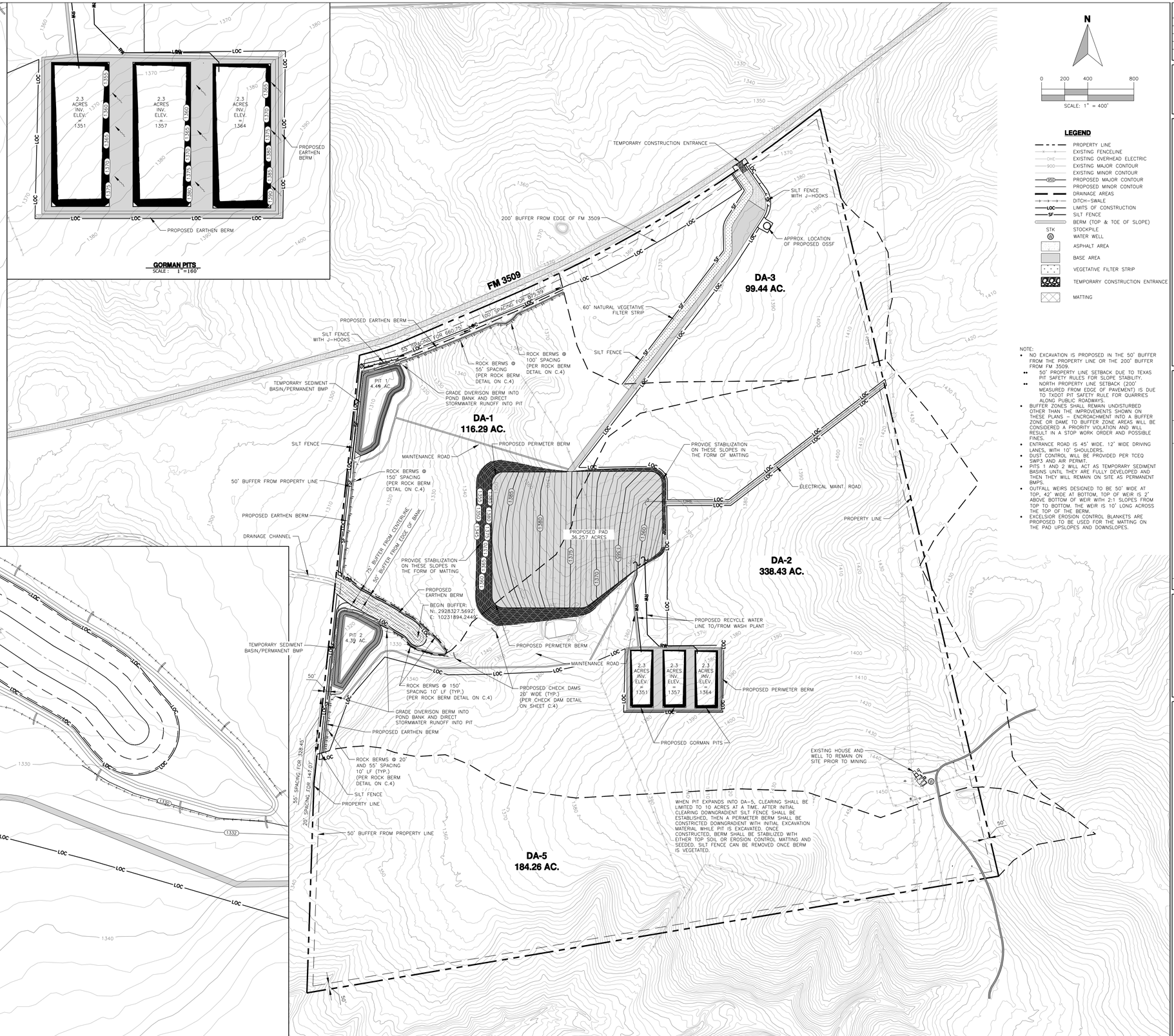


PIT 1
SCALE : 1"=80'

GORMAN PITS
SCALE : 1"=160'



PIT 2 AND BUFFER ZONE
SCALE : 1"=80'



N

0 200 400 800

SCALE: 1" = 400'

LEGEND

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

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.
- BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS – ENCROACHMENT INTO A BUFFER ZONE OR DAME TO BUFFER ZONE AREAS WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.
- ENTRANCE ROAD IS 45' WIDE, 12' WIDE DRIVING LANES, WITH 10' SHOULDERS.
- DUST CONTROL WILL BE PROVIDED PER TCEQ SWP3 AND AIR PERMIT.
- PITS 1 AND 2 WILL ACT AS TEMPORARY SEDIMENT BASINS UNTIL THEY ARE FULLY DEVELOPED AND THEN THEY WILL REMAIN ON SITE AS PERMANENT BMP'S.
- OUTFALL WEIRS DESIGNED TO BE 50' WIDE AT TOP, 42' WIDE AT BOTTOM, TOP OF WEIR IS 2' ABOVE BOTTOM OF WEIR WITH 2:1 SLOPES FROM TOP TO BOTTOM. THE WEIR IS 10' LONG ACROSS THE TOP OF THE BERM.
- EXCELSIOR EROSION CONTROL BLANKETS ARE PROPOSED TO BE USED FOR THE MATTING ON THE PAD UPSLOPES AND DOWNSLOPES.

IMAGE:	N/A
ISSUE DATE:	3/21/2025
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JOB NO.:	10853-256

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STATE OF TEXAS
CURT GARRETT CAMPBELL
10685
LICENSED PROFESSIONAL ENGINEER

Curt G. Campbell, P.E.
License No.: 106851
3/21/2025

EROSION & SEDIMENTATION CONTROL PLAN

LCRA PERMITTING – BURNET QUARRY

ASPHALT INC.

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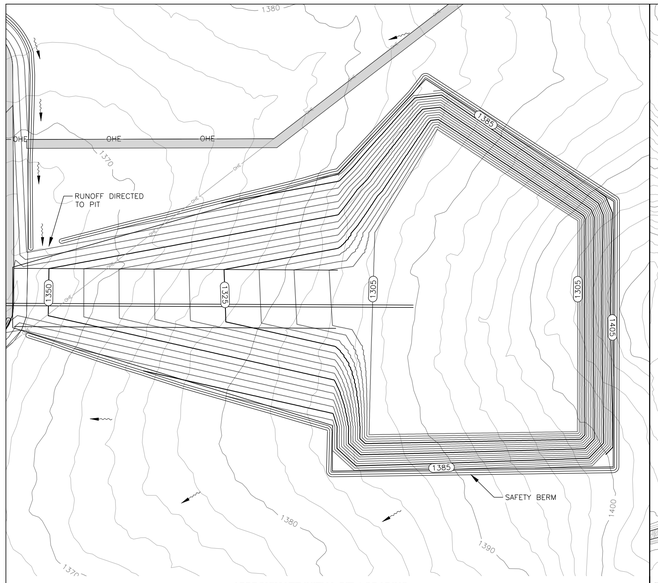
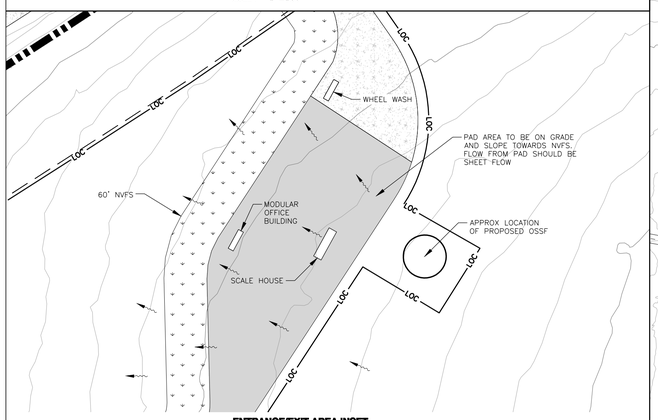
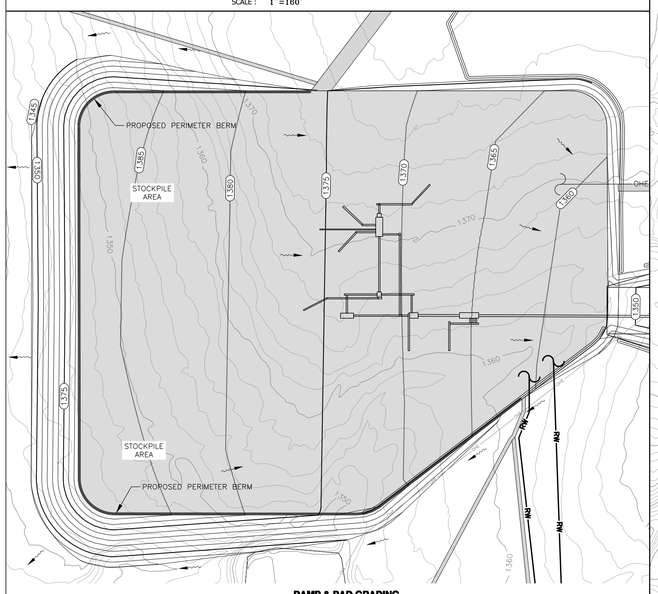


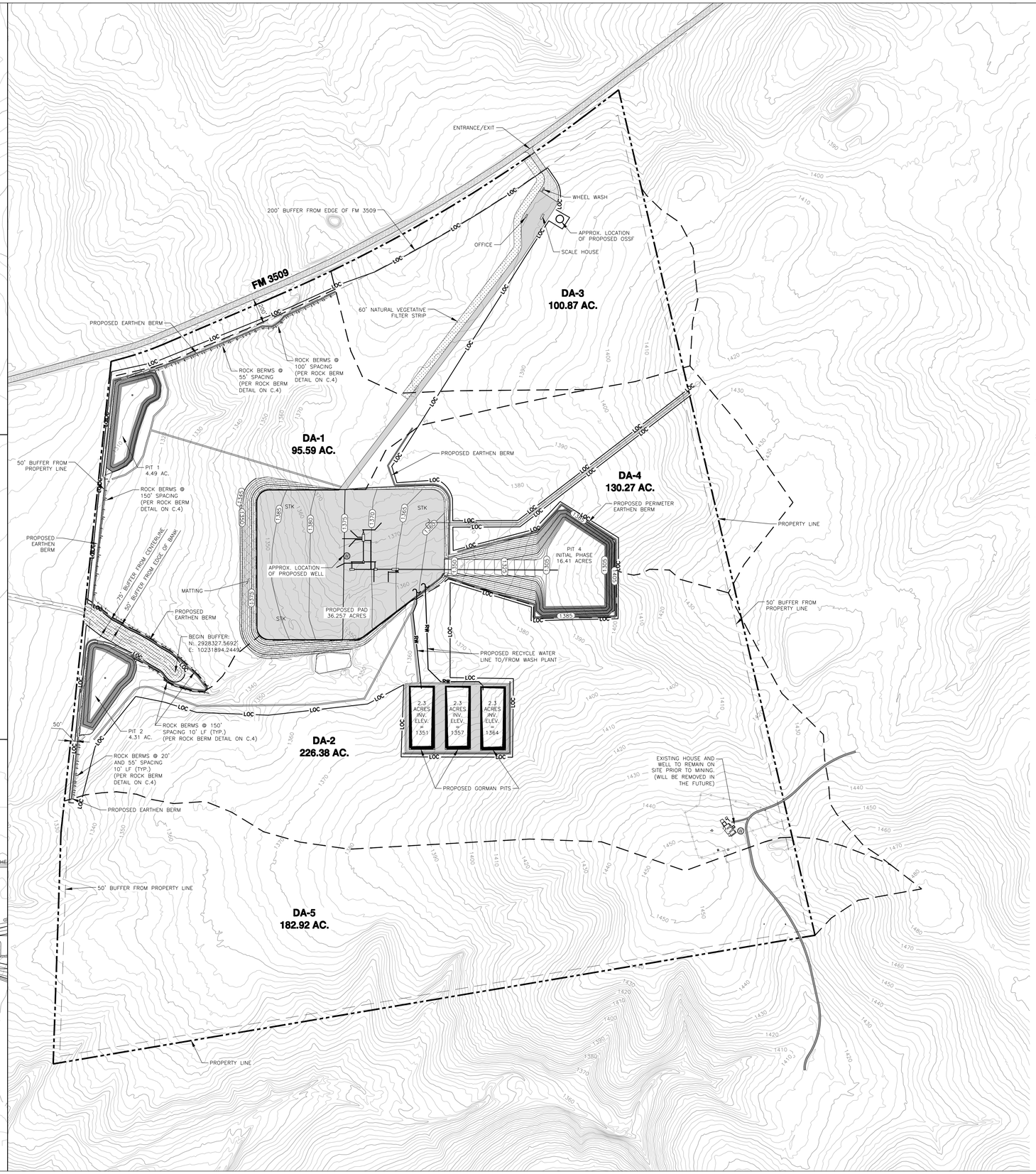
APPROXIMATE INITIAL PIT 4 GRADING
SCALE: 1"=160'

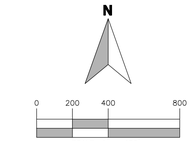


ENTRANCE/EXIT AREA INSET
SCALE: 1"=160'



RAMP & PAD GRADING
SCALE: 1"=200'





LEGEND

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

NOTES

1. BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS. ENCROACHMENT INTO A BUFFER ZONE OR DAMAGE TO BUFFER ZONE AREA WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.
2. DUST CONTROL WILL BE PROVIDED PER TCEQ SWP3 AND AIR PERMIT.

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.

IMAGE:	N/A
ISSUE DATE:	3/21/2025
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STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED
PROFESSIONAL ENGINEER
3/21/2025

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

INITIAL CONDITIONS

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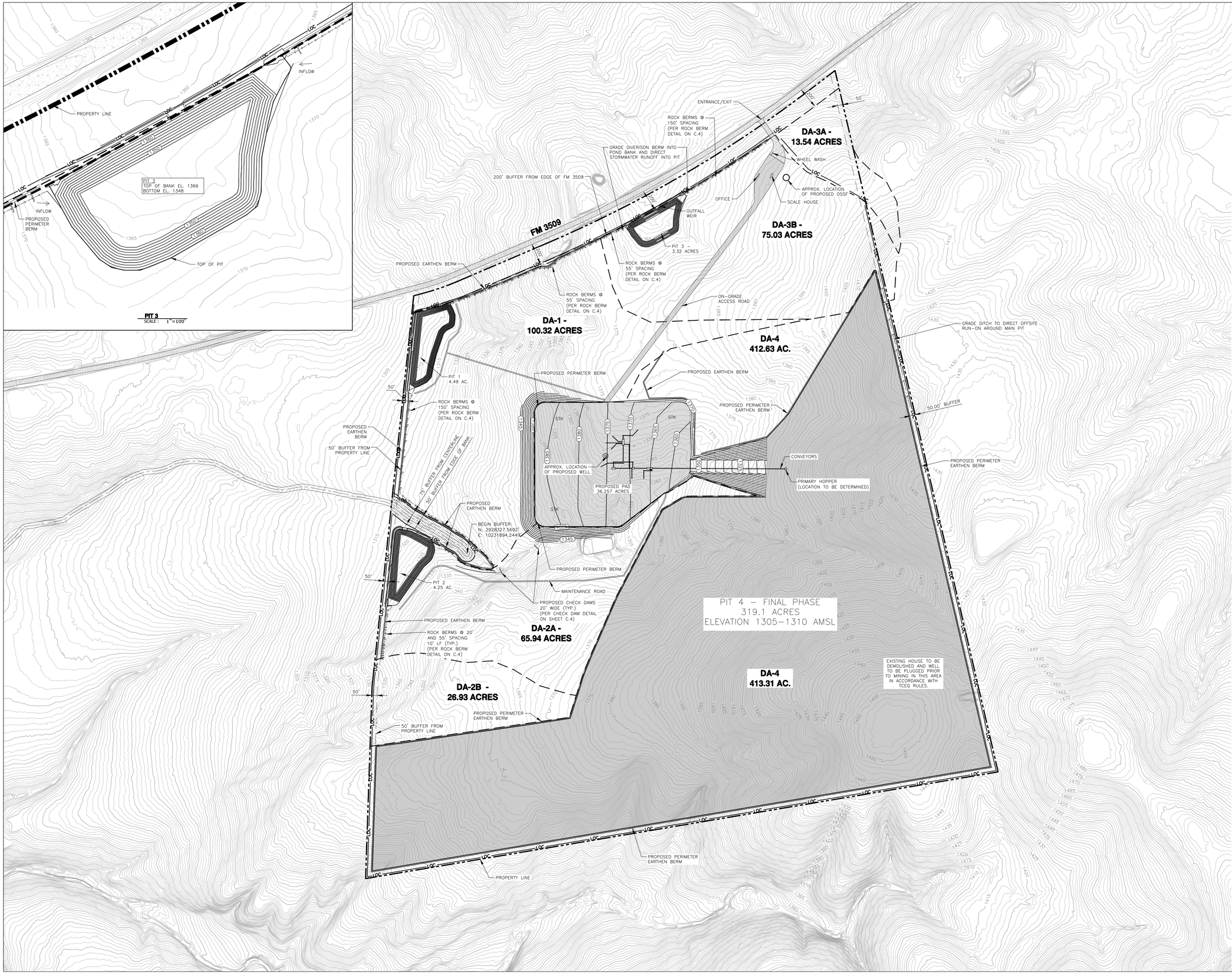
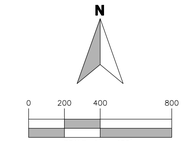
ASPHALT INC.
3221 FM 3509, BURNET, TX 78611

PIT 3
SCALE: 1"=100'





LEGEND

- PROPERTY LINE
- EXISTING FENCELINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- DRAINAGE AREAS
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- BERM (TOP & TOE OF SLOPE)
- STK — STOCKPILE
- W — WATER WELL
- ASPHALT AREA
- BASE AREA

NOTES:

- PROPOSED RETENTION PIT 3 IS 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.
- 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 SOUTHEAST CORNER AND FLOW INTO RETENTION PIT 2.
- VEGETATIVE FILTER STRIP TO BE REMOVED AND REPLACED BY RETENTION PIT 3 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 320 ACRE CONTRIBUTING DRAINAGE AREA ENDS. (LCRA HWLO 5.2(c)(i))
- BUFFER ZONES SHALL REMAIN UNDISTURBED OTHER THAN THE IMPROVEMENTS SHOWN ON THESE PLANS – ENCROACHMENT INTO A BUFFER ZONE OR DAME TO BUFFER ZONE AREAS WILL BE CONSIDERED A PRIORITY VIOLATION AND WILL RESULT IN A STOP WORK ORDER AND POSSIBLE FINES.
- DUST CONTROL WILL BE PROVIDED PER TCEQ SWP3 AND AIR PERMIT.
- THE 60' NVFS IS NOT NECESSARY IN THIS PHASE AS DA-3B IS UTILIZING PIT 3 FOR WATER QUALITY.
- ALL DEVELOPMENT IS LIMITED TO WHAT IS SHOWN ON THE FINAL CONDITIONS PLAN SHEET.
- ANY FUTURE DEVELOPMENT NEEDS TO BE SUBMITTED TO LCRA FOR TECHNICAL REVIEW AND PERMIT REVISION APPROVAL.
- NO OFFSITE RUN-ON WILL ENTER THE MAIN PIT, MINIMAL PONDING IS EXPECTED.

IMAGE:	N/A
ISSUE DATE:	3/27/2025
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	400'
JOB NO.:	10853-256

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REV	DESCRIPTION	BY	DATE

STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED PROFESSIONAL ENGINEER
3/27/2025
Curt G. Campbell, P.E.
License No. 106851

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 BEGIN IN THE PROPOSED PLANT AREA (A) FIRST, FOLLOWED BY INITIATING THE INITIAL PIT AREA B.

A – THE TEMPORARY BMPS (SILT FENCE, ROCK BERMS, PITS, ETC.) WILL NEED TO BE INSTALLED AND THE BUFFER ZONE STAKING WILL NEED TO BE INSPECTED BY A LCRA INSPECTOR BEFORE ANY WORK COMMENCES. PERMITEE MUST CONTACT LCRA TO SCHEDULE AN INSPECTION OF THE ESC'S AND BUFFERS ZONE STAKING A MINIMUM OF 2 WORKING DAYS PRIOR TO THE PRE–CONSTRUCTION MEETING. 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 PITS. 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, PONDS 1 AND 2 WILL BE ROUGHED IN AND UTILIZED AS SEDIMENTATION BASINS IN INITIAL PHASE UNTIL COMPLETED, THEN DRILLING AND BLASTING WILL COMMENCE TO BEGIN EXCAVATION OF THE PLANT AREA. TEMPORARY BERMS MAY BE USED TO DIRECT RUNOFF FROM DISTURBED AREAS TO THE PITS 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 PITS. AFTER CONSTRUCTION OF NECESSARY BERMS AND PITS (INCLUDING THEIR OUTFALL STRUCTURES) IS COMPLETED, MINING OF GORMAN PITS WILL BEGIN, AND THE PLANT EQUIPMENT WILL BE BROUGHT IN AND ERECTED. NEXT, EXCAVATION WILL BEGIN FOR THE GORMAN PITS, AND UPON COMPLETION OF THE PLANT AND GORMAN PITS CONSTRUCTION, CRUSHING ACTIVITIES WILL COMMENCE. LATER, EXCAVATION WILL BEGIN IN THE ENTRANCE AREA INCLUDING A TEMPORARY BUILDING PAD.

B – THE TEMPORARY BMPS (SILT FENCE, ROCK BERMS, TEMPORARY SEDIMENTATION BASINS, ETC.) WILL NEED TO BE INSTALLED AND THE BUFFER ZONE STAKING WILL NEED TO BE INSPECTED BY A LCRA INSPECTOR BEFORE ANY WORK COMMENCES. PERMITEE MUST CONTACT LCRA TO SCHEDULE AN INSPECTION OF THE ESC'S AND BUFFERS ZONE STAKING A MINIMUM OF 2 WORKING DAYS PRIOR TO THE PRE–CONSTRUCTION MEETING. 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 10 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.

THE FINAL 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.
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 (BROAD 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 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 EMPLACED 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 THE 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. DEWATER OR DIVERT FLOW PRIOR TO COMMENCING WORK WITHIN CREEK CHANNELS. CONTACT LCRA FOR INSPECTION OF DEWATERING/DIVERSION 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.

DEWATERING/DIVERSION PLAN

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

EXTENDED DETENTION BASINS:
A 40–HOUR MINIMUM DELAY MUST BE OBSERVED BEFORE DEWATERING FROM 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.

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 ARES 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 LADEN 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" LIP 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.

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 POND, ALLOWING HEAVIER SOLIDS 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 MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS 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 TECHNICAL 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 OZ/YD, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT 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 8 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 STEEL FENCE POST. THERE SHOULD BE A 3–FOOT 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 IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS:
- FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.
- FABRIC NOT SEATED 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 DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.
- WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE SPACING ON SLOPING SITES			
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 BUFFALOGRASS IS SPECIFIED, USE SEED THAT IS TREATED WITH KNO_3 (POTASSIUM NITRATE) TO OVERCOME DORMANCY. USE TABLE 1 TO DETERMINE THE APPROPRIATE SEED MIXTURE AND APPLICATION RATES. FOR TEMPORARY COLD 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 TACKING AGENT APPLIED IN ACCORDANCE WITH THE MANUFACTURER'SRECOMMENDATIONS OR A CRIMPING METHOD ON ALL STRAW OR HAY MULCH OPERATIONS. REVEGETATION IS CONSIDERED AS 80% COVERAGE WITH NO LARGE BARE AREAS.

LCRA EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE LCRA WATER QUALITY MANAGEMENT TECHNICAL MANUAL AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
3. A PRE–CONSTRUCTION CONFERENCE SHALL BE HELD ON–SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND LCRA WATERSHED MANAGEMENT INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE LCRA INSPECTOR, AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.
4. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE LCRA WATERSHED MANAGEMENT PROGRAM. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE LCRA WATERSHED MANAGEMENT INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
5. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER RAINFALL EVENTS IN EXCESS OF 0.5" TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
6. PRIOR TO FINAL ACCEPTANCE BY THE LCRA, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.
7. PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW. A MINIMUM OF FOUR INCHES OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS (EXCEPT ROCK OUTCROP). SALVAGED TOPSOIL FROM THE SITE SHOULD BE USED WHENEVER POSSIBLE. IMPORTED TOPSOIL SHALL BE WEED FREE WITH

A. A MINIMUM 20% ORGANIC CONTENT. TOPSOIL PLACED ON SLOPES EXCEEDING 5 HORIZONTAL TO 1 VERTICAL SHALL HAVE A RELATIVELY HIGH RESISTIVITY TO EROSION.

B. THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS (SELECT ONE OF THE THREE SEED COMBINATIONS LISTED BELOW):

Dates	Climate	Species (lb/ac)	
Year Round	Permanent Cool/Warm Season (Native Species)	Purple three-awn (Aristida purpurea)	1.4
		Sideoats grama (Bouteloua curtipendula)	2.0
		Silver bluestem (Bothriochloa laguroides)	6.0
		Buffalograss (Buchloe dactyloides)	1.4
		Canadian wildrye (Elymus Canadensis)	1.4
		Engelmann's daisy (Engelmannia pinnatif	0.6
		Green sprangletop (Leptochloa dubia)	2.6
		Mexican hat (Ratibida columnifera)	1.0
		Little bluestem (Schizachyrium scoparium	1.8
		Indiangrass (Sorghastrum nutans)	1.8
		Texas Wintergrass (Nassella leucotricha)	15.0
		Total	**35.0**
Mar 30-Oct 1	Permanent Warm Season	Bermuda (Cynodon dactylon)(hulled)	45.0

APPENDIX 2.7.2

Oct 1-Mar 30	Permanent Cool/Warm Season	Bermuda (Cynodon dactylon)(unhulled)	70.0
		*Cereal Rye (Secale cereale)	90.0
		Total	**160.0**

TAKE CARE TO DISTRIBUTE SEED EVENLY, BY SOWING FINE AND LARGE SEEDS SEPARATELY OR BY USING A FINE SEED BOX. WHEN BROADCASTING SEEDING, THE APPLICATION RATE SHOULD BE DOUBLED AND THE AREA ROLLED TO ENSURE A GOOD SEED/SOIL CONTACT

*FROM SEPTEMBER 15 TO MARCH 1, OATS (21 LB/ACRE) AND WINTER WHEAT (30 LB/ACRE) MAY BE SUBSTITUTED FOR RYE. MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 3500 LB/ACRE (HAY), 4500 LB/ACRE OR 2500 LB/ACRE (HYDRAULIC MULCH). TACKIFIER, IF USED SHALL BE BIODEGRADABLE.

C. THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX INCHES. THE IRRIGATION SHALL OCCUR AT TEN–DAY INTERVALS DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF ½ INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK.

D. RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1½ INCHES HIGH WITH 70% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST. CRITICAL AREAS INCLUDING CREEK CROSSINGS, SLOPES, STORMWATER DISCHARGE POINTS MUST BE COMPLETELY STABILIZED. PERMANENT WATER QUALITY BMPS MUST ATTAIN 80% COVERAGE.

8. DEVELOPER INFORMATION:

OWNER______________________________ PHONE #_______________

ADDRESS____

OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:

__________ ________________________PHONE #_______________

PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE:

__________ ________________________PHONE #_______________

PERSON OR FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:

__________ ________________________PHONE #_______________

9. THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE LCRA WATERSHED MANAGEMENT INSPECTOR AT LEAST 48 HOURS PRIOR WITH THE LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.

NOTES FOR CONSTRUCTION IN CREEKS:

SCHEDULE WORK WHEN A MINIMUM OF _(INCLUDE A SUFFICIENT TIME PERIOD TO COMPLETE THE WORK)_DAYS OF DRY WEATHER ARE FORECAST. DEWATER OR DIVERT FLOW PRIOR TO COMMENCING WORK WITHIN CREEK CHANNELS. CONTACT LCRA FOR INSPECTION OF DEWATERING/DIVERSION 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.

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 SHOAT 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".
- WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
- BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
- THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

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 DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

LCRA TECHNICAL MANUAL SECTION 4.3.7 (5–8) FOR NVFS:

(5) UPPER BOUNDARY REQUIREMENTS: THE FILTER STRIP MUST RUN ALONG THE ENTIRE EDGE OF THE CONTRIBUTING AREA, NO COLLECTION OR ROUTING ALLOWED EXCEPT FOLLOWING A WATER QUALITY BASIN WITH FLOW ATTENUATION OR DISCHARGE FROM A LEVEL SPREADER TO THE FILTER STRIP. THE SOIL ALONG THE UPPER BOUNDARY MUST BE REINFORCED WITH PROTECTIVE MATTING OR AN INFILTRATION TRENCH (PREFERRED) MAY BE USED. REFER TO FIGURE 4.14.

(6) VELOCITY RESTRICTIONS: VEGETATIVE FILTER STRIPS ARE SUSCEPTIBLE TO EROSION AND THE FORMATION OF RILLS; THEREFORE, MAY REQUIRE THE USE OF A FLOW SPREADER OR AN INFILTRATION TRENCH TO SPREAD FLOWS AND DISSIPATE EROSIVE VELOCITIES.
THE RUNOFF FROM THE CONTRIBUTING AREA ENTERING THE UPPER BOUNDARY OF THE FILTER STRIP SHALL BE IN SHEET FLOW CONDITIONS. SHEET FLOW CONDITIONS MUST MEET THE FOLLOWING CONSTRAINTS DURING THE PEAK FLOW OF A 1–YR, 3–HR STORM EVENT UNDER FULLY-DEVELOPED CONDITIONS:

I. THE VELOCITY OF FLOW ACROSS THE FILTER STRIP MUST NOT EXCEED 1 FT/SEC.

II. THE AVERAGE DEPTH OF FLOW ACROSS THE FILTER STRIP MUST NOT EXCEED 0.2 FEET FOR A VEGETATIVE FILTER STRIP USED IN COMBINATION WITH A WATER QUALITY BASIN.

L = 5Q1 YEAR DEV
L = MINIMUM WIDTH OF A FLOW SPREADER (FT) PERPENDICULAR TO FLOW
Q(1 YEAR DEV) = PEAK FLOW RATE FROM THE 1–YR, 3–HR STORM EVENT (SEE APP. 2.4)

III. THE AVERAGE DEPTH OF FLOW ACROSS THE FILTER STRIP MUST NOT EXCEED 0.1 FEET FOR A VEGETATIVE FILTER STRIP USED AS A STAND ALONE BMP.

L = 10Q1 YEAR DEV
L = MINIMUM WIDTH OF A FLOW SPREADER (FT) PERPENDICULAR TO FLOW
Q1 YEAR DEV = PEAK FLOW RATE FROM THE 1–YR, 3–HR STORM EVENT (SEE APP. 2.4)

(7) SURFACE CHARACTERISTICS: THE FILTER AREA MUST BE FREE OF GULLIES, RILLS AND FLOW CONCENTRATIONS AND HAVE 70% VEGETATIVE COVER.

(8) SOIL REQUIREMENTS: THE SOIL MUST AVERAGE 4–INCHES IN DEPTH. ROCK CROP AREAS MAY BE PRESENT BUT MUST BE DEDUCTED FROM THE TOTAL FILTER STRIP AREA AND MUST NOT AFFECT THE FUNCTION OF THE VEGETATIVE FILTER STRIP.

IMAGE: N/A	
ISSUE DATE:	3/21/2025
DRAWN BY:	JPW
CHECKED BY:	CGC
SCALE: 1" =	AS NOTED
JOB NO.:	10853–256

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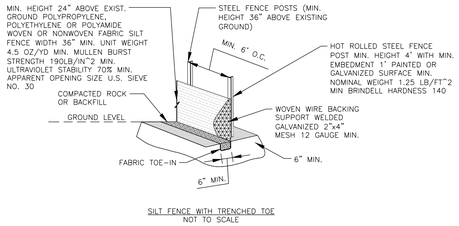
REV.	DESCRIPTION	BY	DATE

STATE OF TEXAS
CURT GARRETT CAMPBELL
106851
LICENSED
PROFESSIONAL ENGINEER
3/21/2025
Curt G. Campbell, P.E.
License No. 106851

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



SILT FENCE WITH TRENCHED TOE
NOT TO SCALE

FIGURE 3-20

Installation:

Proper installation of blankets and matting is necessary for these materials to function as intended. They should always be installed in accordance with the manufacturer's recommendations. Proper anchoring of the material and preparation of the soil are two of the most important aspects of installation. Typical anchoring methods are shown in Figure 14 and Figure 15.

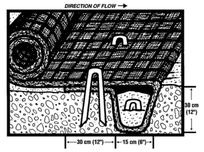


Figure 3-14 Initial Anchor Trench for Blankets and Mats

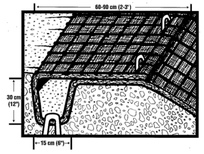


Figure 3-15 Terminal Anchor Trench for Blankets and Mats

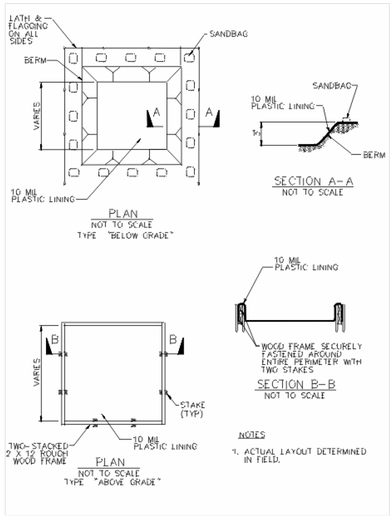
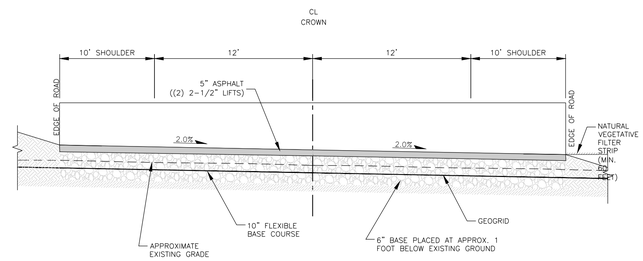


Figure 3-35 Schematic Diagrams of Concrete Washout Areas

NOTE:
ROAD SECTION IS PRELIMINARY TO BE DETERMINED BY PENDING FINAL GEOTECH REPORT.



TYPICAL DRIVEWAY SECTION

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. GEOGRID SHOULD CONSIST OF TENSAR TX7 AND BE PLACED AT THE BOTTOM OF THE FLEXIBLE BASE MATERIAL

IMAGE:	N/A
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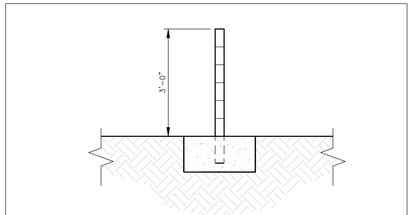


DETAIL SHEET C1 — **SEDIMENT DEPTH MARKER** SCALE: 1/2" = 1'-0"

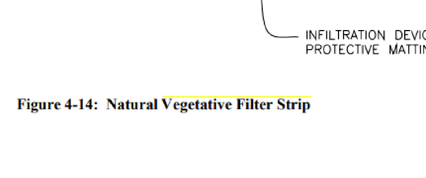


FIGURE 3-21

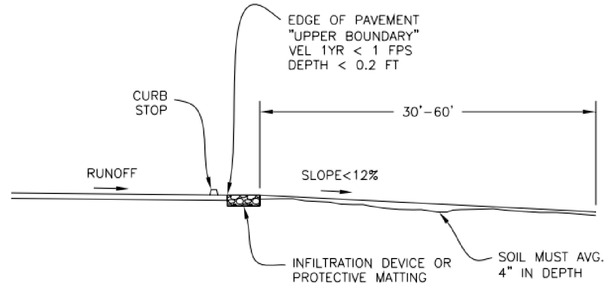
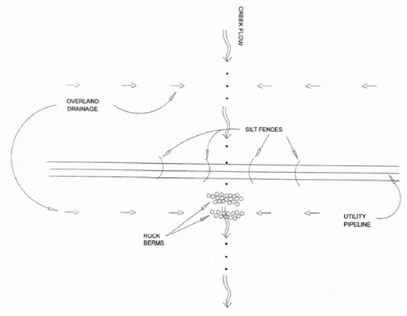
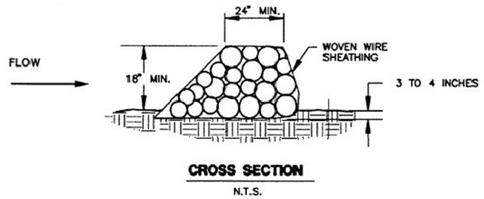


Figure 4-14: Natural Vegetative Filter Strip

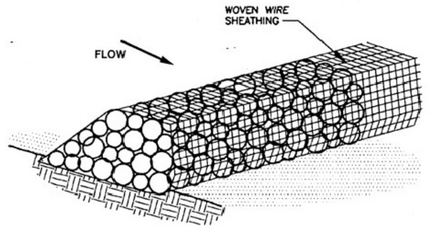


Utility Crossing or Excavation within Creek

APPENDIX 2.7.1



CROSS SECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

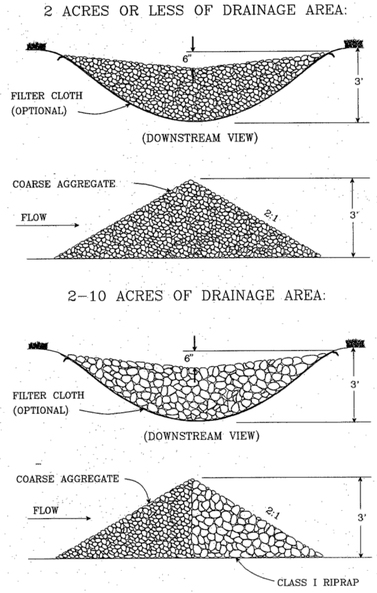
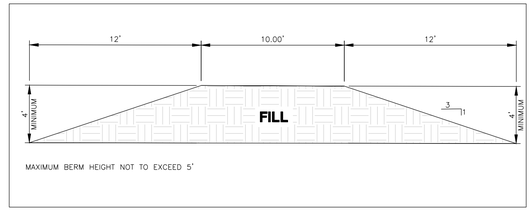


Figure 3-26 Diagram of a Rock Check Dam

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.

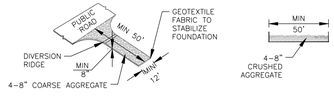


MAXIMUM BERM HEIGHT NOT TO EXCEED 5'

STABILIZED CONSTRUCTION ENTRANCE

INSTALLATION:
1. AVOID 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" HIGHT 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 CONDITONS 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/SQ. YD.; 140 LB/SQ. IN MULLEN BURST.
- EQUIVALENT OPENING SIZE MIN. 50 SIEVE.
- GRADE SLOPE TO DRAIN.
- ADD ADDITIONAL STONE AS REQUIRED.
- STABILIZED CONSTRUCTION EXIT SHOULD EXTEND FULL WIDTH OF ROAD.

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