

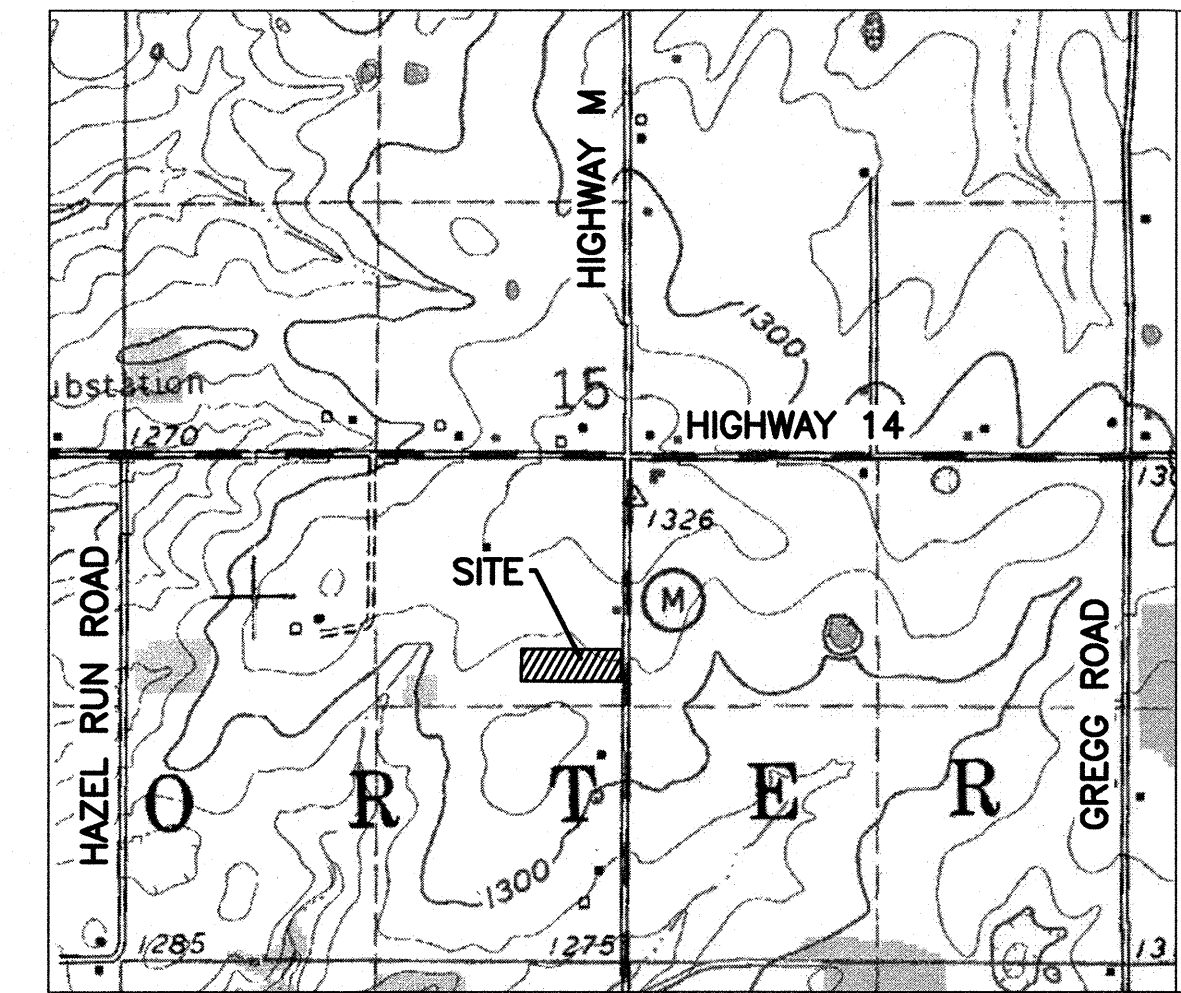
PARKING LOT IMPROVEMENTS PLAN
NIXA FIRE STATION #2

301 S. NICHOLAS RD.
NIXA, CHRISTIAN COUNTY, MISSOURI 65714



SHEET INDEX:

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SHEET 6. SITE GRADING PLAN
SHEET 7. SPOT ELEVATION PLAN
SHEET 8. SEDIMENT & EROSION CONTROL PLAN

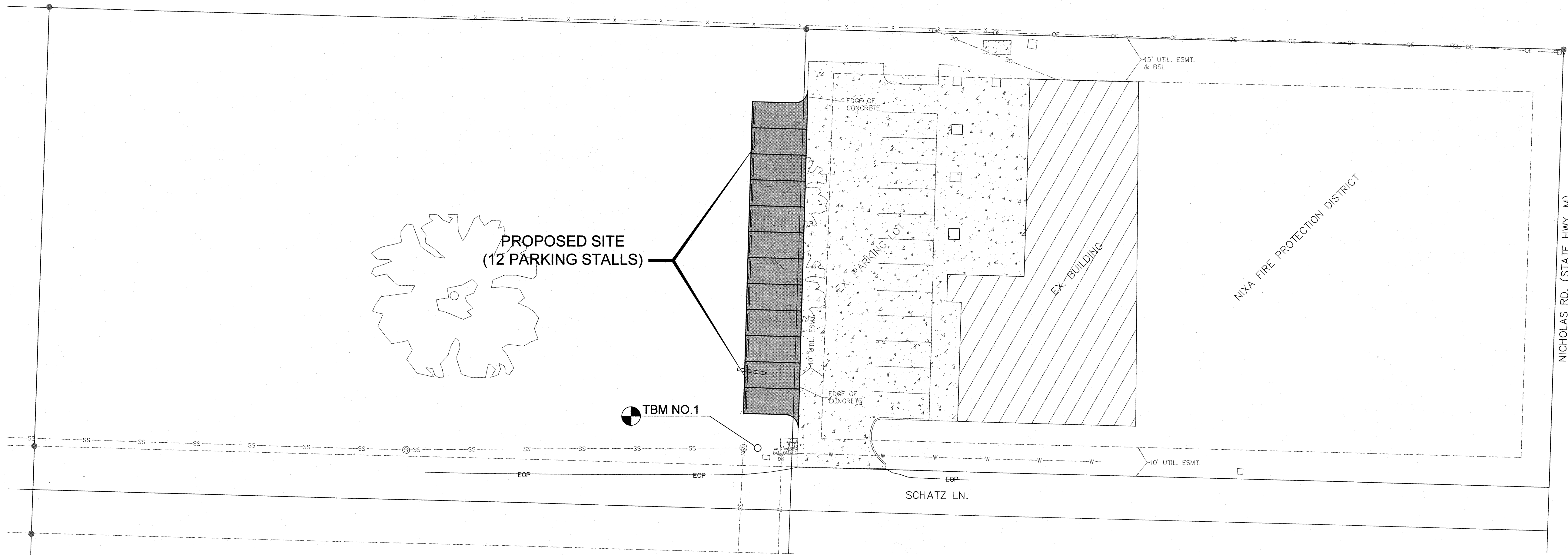


LOCATION MAP:

PART OF NE1/4, SW1/4 SECTION 15, TOWNSHIP 27 NORTH, RANGE 22 WEST
NOT TO SCALE

LEGEND

- = EXISTING IRON PIN;
- = 5/8" IRON PIN SET CAPPED "LC-838" EXCEPT AS NOTED;
- + = CROSS CUT IN CONCRETE;
- = EXIST. R/W MARKER;
- = EXIST. SURVEY STONE;
- = CHAIN-LINK FENCE;
- = WIRE FENCE;
- = WOOD FENCE;
- = SANITARY SEWER;
- = GAS LINE;
- = WATER LINE;
- = OVERHEAD ELECTRIC;
- = TELEPHONE AND/OR FIBER OPTIC LINE;
- = FIBER OPTICS;
- = STORM SEWER;
- = POWER POLE;
- = WATER VALVE;
- = WATER METER;
- = FIRE HYDRANT;
- = GAS VALVE;
- = SEWER MANHOLE;
- = SEWER CLEAN-OUT;
- = CURB INLET;
- = ELECTRIC TRANSFORMER;
- = STREET/PARKING LIGHT;
- = DRAINAGE MANHOLE;
- = TRAFFIC CONTROL PULLBOX;
- = FLOOD LIGHT;
- = TRAFFIC CONTROL CABLE;
- = TELEPHONE RISER;
- = GAS METER;
- = CONIFEROUS TREE;
- = DECIDUOUS TREE;
- = GROUP OF TREES;
- (M) = MEASURED DISTANCE;
- (D) = DEED DISTANCE;
- (R) = RECORD DISTANCE;
- (P) = PLAT DISTANCE;
- ⊙ = WELL;
- ⊙ = POLE ANCHOR;



OVERALL SITE PLAN

SCALE: HOR. 1" = 20'

CAUTION

Existing underground installations such as water mains, gas mains, sewers, telephone lines, fiber optic lines, power lines and buried structures are indicated on the drawing only to the extent such information has been made available to or discovered by the surveyor in preparing this drawing and are for reference only. There is no guarantee as to the accuracy or completeness of such information. It shall be the Contractors responsibility to field verify all existing items shown on the drawing.

SAFETY NOTICE TO CONTRACTOR

- In accordance with generally accepted construction practices, the contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
- The duty of the engineer or owner to conduct construction review of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures in, on, or near the construction site.

BENCHMARK

- ⊙ TBM NO. 1 - TOP RIM OF EXISTING MAHOLE, LOCATION AS SHOWN ON PLAN, THIS SHEET. ELEV. 1308.38

GENERAL CONSTRUCTION NOTES:

- ALL IMPROVEMENTS SHALL BE PER THE CITY OF NIXA TECHNICAL SPECIFICATIONS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND MOVE ANY AFFECTED UTILITIES. THE ENGINEER DOES NOT GUARANTEE THAT ALL UTILITIES ARE SHOWN ON THESE PLANS.
- IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE UTILITY SUPPLIERS AND ARRANGE FOR ANY NECESSARY MODIFICATIONS REQUIRED TO FACILITATE CONSTRUCTION ACTIVITIES.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO KEEP ROCK, MUD, AND OTHER DEBRIS FROM ACCESS STREETS CAUSED BY CONSTRUCTION EQUIPMENT THROUGHOUT THE DAY AND AT THE END OF EACH WORK DAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AS-BUILT PLANS FOR ANY DEVIATIONS FROM THIS SET OF PLAN SHEETS.
- CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS AND SLOPES AND SHALL CONFIRM WITH ENGINEER AND NOTE ANY VARIATION THEREOF PRIOR TO INSTALLMENT.
- 3/4" CLEAN CRUSHED STONE FULL DEPTH BACKFILL SHALL BE PROVIDED OVER UTILITIES AND STORM SEWER LINES WHERE LINE IS LOCATED UNDER PAVEMENT.
- FINAL CLEAN-UP REQUIREMENTS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE STRICTLY ENFORCED.
- CONTRACTOR SHALL INCLUDE COSTS WITHIN THEIR BID TO DEMO & RE-CONNECT EXISTING UTILITIES. THIS INCLUDES UTILITIES THAT WILL REMAIN IN PLACE BUT ARE DAMAGED DURING THE CONSTRUCTION PROCESS. THIS ALSO INCLUDES EXISTING UTILITIES THAT NEED TO BE RELOCATED TO FACILITATE CONSTRUCTION. 9 CONTRACTOR SHALL INCLUDE THE COST WITHIN THEIR BID TO DIG POTHOLES PRIOR TO CONSTRUCTION TO IDENTIFY EXACT LOCATION OF UTILITIES.
- SHAFFER & HINES, INC., WILL MAKE DIGITAL FILES AVAILABLE. THESE WILL BE IN .DWG FORMAT AUTOCAD CIVIL 3D. THE CONTRACTOR MUST EXECUTE A DIGITAL DATA AGREEMENT WITH SHAFFER & HINES, INC. PRIOR TO ISSUING DIGITAL FILE.

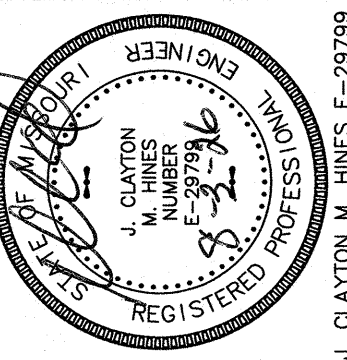
NIXA FIRE STATION #2

PARKING LOT IMPROVEMENTS

NIXA, CHRISTIAN COUNTY, MISSOURI

OWNERS/DEVELOPERS:

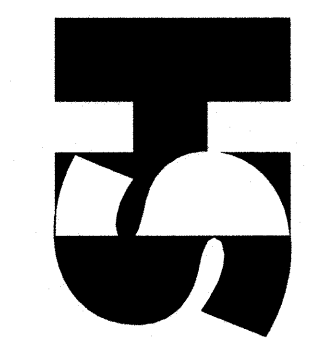
NIXA FIRE PROTECTION DISTRICT



SHAFFER & HINES, INC.
CERTIFICATE OF AUTHORITY
LICENSE NO. E-1665-D

SHAFFER & HINES
CONSULTING ENGINEERS - PROFESSIONAL LAND SURVEYORS
DBE CERTIFIED COMPANY

P.O. Box 493, Nixa, Missouri, 65714
Tel: (417) 725-4663 • Fax: (417) 725-5230
Email: ch@shaferhines.com



COVER SHEET

DESIGN BY CH
DRAWN BY SM
CHECKED BY CH
DATE 2026
SCALE AS SHOWN

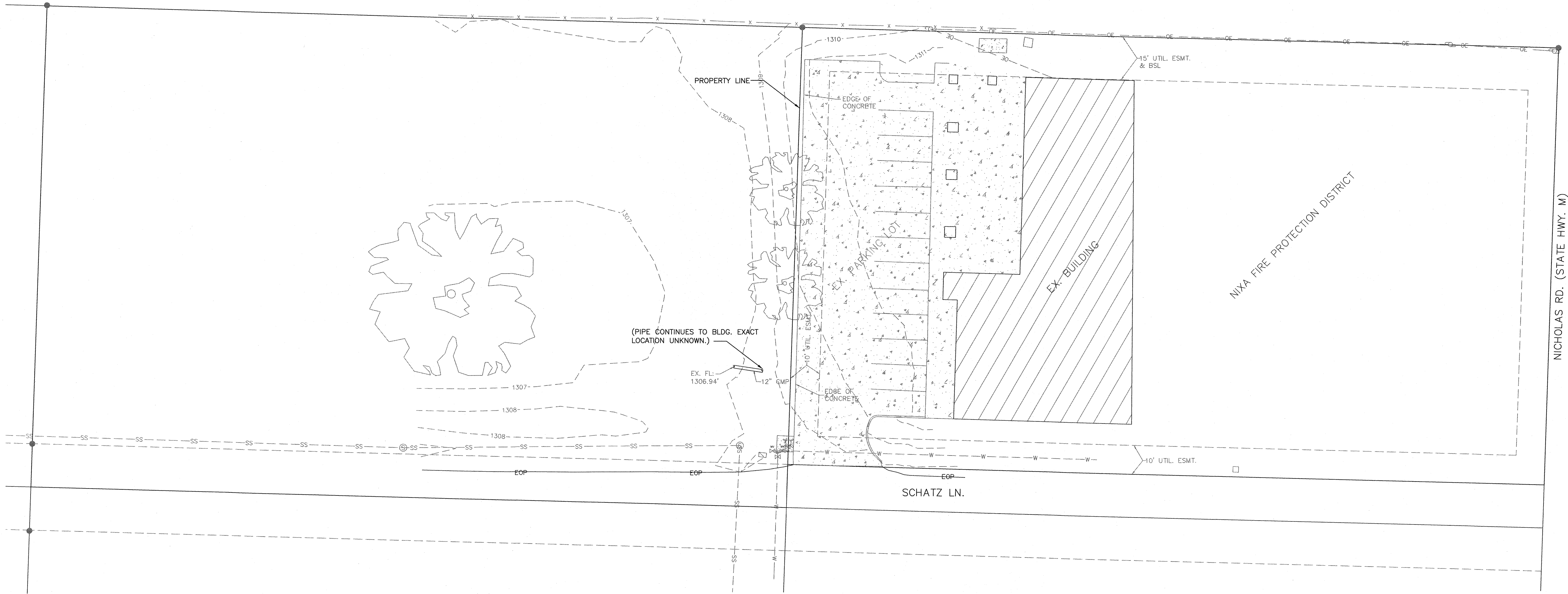
REVISIONS

JOB NO.

260034

SHEET

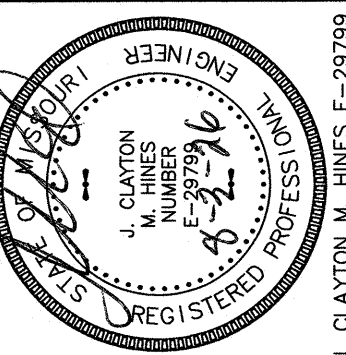
1 OF 8



TOPOGRAPHICAL SURVEY
SCALE: HOR. 1" = 20'

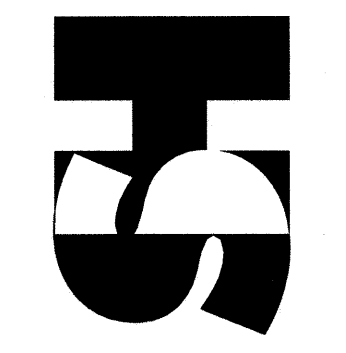


NIXA FIRE STATION #2
PARKING LOT IMPROVEMENTS
NIXA, CHRISTIAN COUNTY, MISSOURI
OWNERS/DEVELOPERS:
NIXA FIRE PROTECTION DISTRICT



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TOPOGRAPHICAL SURVEY

DESIGN BY CH
DRAWN BY SM
CHKD BY CH
DATE 2026
SCALE AS SHOWN

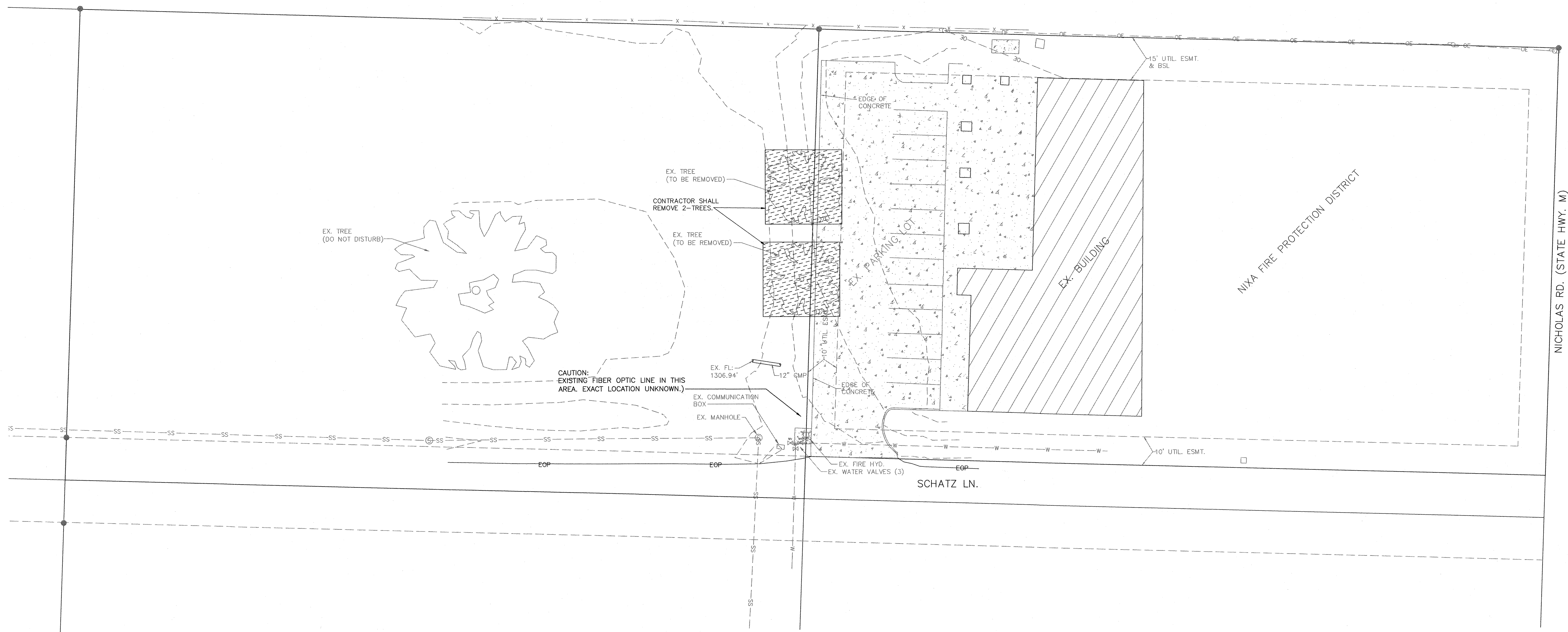
REVISIONS

JOB NO.
260034

SHEET
2 OF 8



HATCH LEGEND
AREA OF DEMOLITION



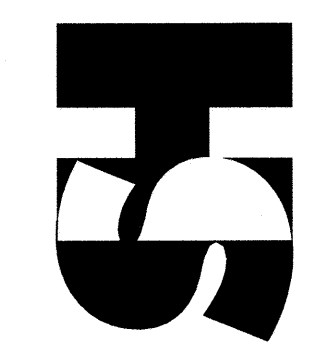
DEMOLITION PLAN
SCALE: HOR. 1" = 20'

NIXA FIRE STATION #2
PARKING LOT IMPROVEMENTS
NIXA, CHRISTIAN COUNTY, MISSOURI
OWNERS/DEVELOPERS:
NIXA FIRE PROTECTION DISTRICT



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DEMOLITION PLAN

DESIGN BY CH
DRAWN BY SM
CHECKED BY CH
DATE 2026
SCALE AS SHOWN

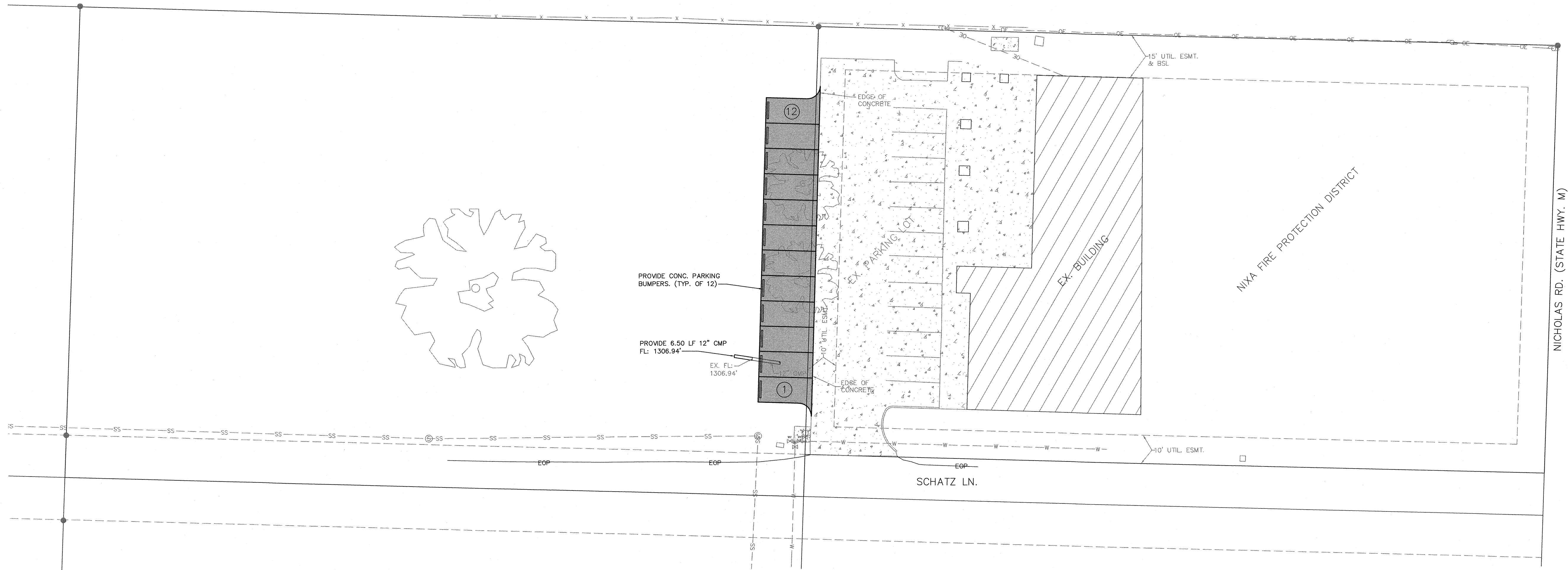
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JOB NO.
260034

SHEET
3 OF 8

HATCH LEGEND

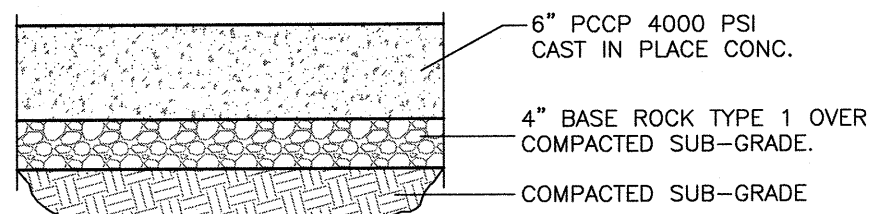
NEW PAVEMENT



SITE PLAN - PARKING IMPROVEMENTS

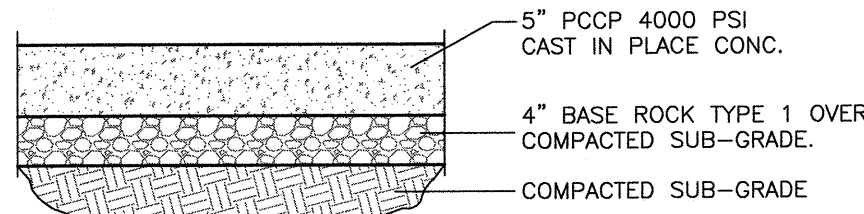
SCALE: HOR. 1" = 20'

OPTION #1



HEAVY CONCRETE
PAVING SECTION
NOT TO SCALE

OPTION #2

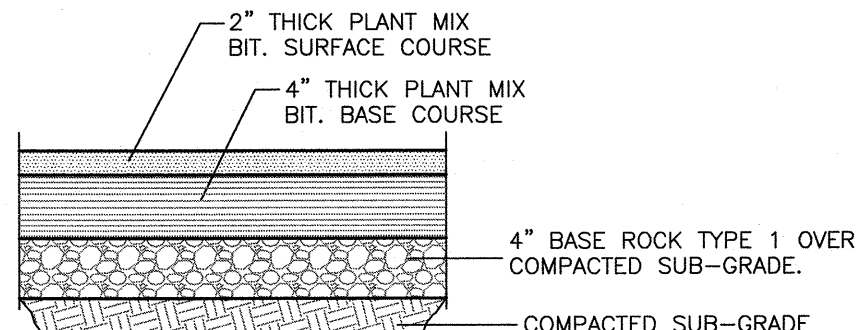


STANDARD CONCRETE
PAVING SECTION
NOT TO SCALE

CONCRETE PAVEMENT NOTES:

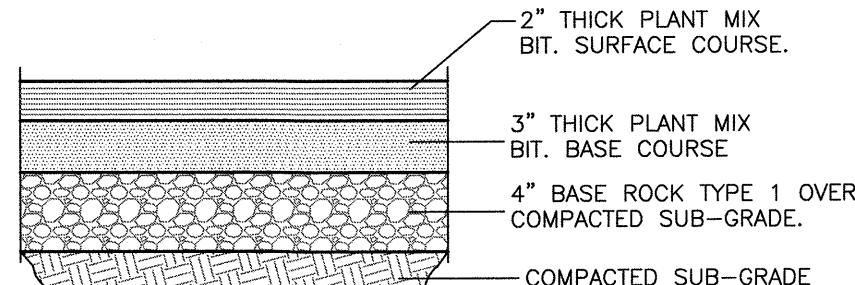
1. SUBGRADE MUST BE STABLE AND HARD UNDER PROOF ROLLING WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO INSTALLING BASE ROCK.
2. SOILS MUST BE PLACED AND COMPACTED TO A MIN. OF 95% DRY DENSITY DETERMINED BY ASTM D698 WITH MAX. LOOSE LIFT OF 8".
3. THE MAX. COMPACTED THICKNESS OF ANY ONE LAYER OF BASE ROCK MATERIAL SHALL NOT EXCEED 6" WITH EACH LIFT COMPACTED TO 100% OF MAX. DRY DENSITY AS DETERMINED BY ASTM D698 (STANDARD PROCTOR).
4. CONC. PAVEMENTS SHOULD BE MEET THE REQUIREMENTS OF SECTION 502 OF THE MODOT STANDARD SPECIFICATIONS FOR PORTLAND CEMENT CONCRETE PAVEMENTS.
5. CARE MUST BE TAKEN TO DEVELOP POSITIVE DRAINAGE ACROSS AND FROM AROUND THE PAVEMENT EDGES. WATER ALLOWED TO POND ON OR ADJACENT TO PAVEMENTS WOULD INCREASE THE POTENTIAL FOR MOISTURE INTRUSION INTO THE SUBGRADE SOILS AND COULD RESULT IN PREMATURE FAILURE. MUST BE TAKEN TO DEVELOP POSITIVE DRAINAGE ACROSS AND FROM AROUND THE PAVEMENT EDGES. WATER ALLOWED TO POND ON OR ADJACENT TO PAVEMENTS WOULD INCREASE THE POTENTIAL FOR MOISTURE INTRUSION INTO THE SUBGRADE SOILS AND COULD RESULT IN PREMATURE FAILURE.
6. POSITIVE DRAINAGE ACROSS AND FROM AROUND THE PAVEMENT EDGES. WATER ALLOWED TO POND ON OR ADJACENT TO PAVEMENTS WOULD INCREASE THE POTENTIAL FOR MOISTURE INTRUSION INTO THE SUBGRADE SOILS AND COULD RESULT IN PREMATURE FAILURE.
7. MIN. 4 TESTS REQUIRED PER MATERIAL OR ADDED TESTS MAY BE REQUIRED BY PROFESSIONAL ENGINEER.
8. PROVIDE CONTROL JOINTS WITH SEALANT AT MAX. OF 12'-0"C.C. AND EXPANSION JOINTS AT COLD JOINTS.

OPTION #3



ASPHALT PAVING
SECTION-HEAVY
NOT TO SCALE

OPTION #4

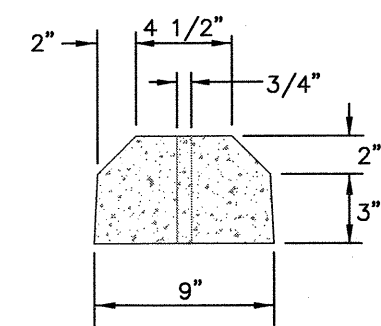


ASPHALT PAVING
SECTION-STANDARD
NOT TO SCALE

NOTE:
THIS DETAIL USED
FOR ALT. ASPHALT
BID.

ASPHALT PAVEMENT NOTES:

1. SUBGRADE MUST BE STABLE AND HARD UNDER PROOF ROLLING WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO INSTALLING BASE ROCK.
2. SOILS MUST BE PLACED AND COMPACTED TO A MIN. OF 95% DRY DENSITY DETERMINED BY ASTM D698 WITH MAX. LOOSE LIFT OF 8".
3. THE MAX. COMPACTED THICKNESS OF ANY ONE LAYER OF BASE ROCK MATERIAL SHALL NOT EXCEED 6" WITH EACH LIFT COMPACTED TO 100% OF MAX. DRY DENSITY AS DETERMINED BY ASTM D698 (STANDARD PROCTOR).
4. THE COMPACTED THICKNESS OF A SINGLE LAYER OF PLANT MIX BIT. PAVEMENT BASE MIX SHALL BE BETWEEN 3" AND 4 1/4" WITH EACH LAYER COMPACTED TO 95% OF 50 BELOW MARSHALL DENSITY (ASTM D1559).
5. THE COMPACTED THICKNESS OF A SINGLE LAYER OF PLANT MIX BIT. PAVEMENT SURFACE MIX SHALL NOT EXCEED 2" FOR THE COURSE WITH EACH LAYER COMPACTED TO 95% OF 50 BELOW MARSHALL DENSITY (ASTM D1559).
6. A MAINTENANCE PROGRAM THAT INCLUDES SURFACE SEALING, JOINT CLEANING AND SEALING AND TIMELY REPAIR OF CRACKS AND DETERIORATED AREAS WILL HELP PRESERVE THE PAVEMENT LIFE.
7. CARE MUST BE TAKEN TO DEVELOP POSITIVE DRAINAGE ACROSS AND FROM AROUND THE PAVEMENT EDGES. WATER ALLOWED TO POND ON OR ADJACENT TO PAVEMENTS WOULD INCREASE THE POTENTIAL FOR MOISTURE INTRUSION INTO THE SUBGRADE SOILS AND COULD RESULT IN PREMATURE FAILURE.
8. THE PLANT MIX BIT. PAVEMENT SURFACE & BASE MIXES SHOULD MEET THE REQUIREMENTS OF SECTION 401 OF THE MODOT STANDARD SPECIFICATIONS.
9. THE BASE ROCK SHOULD MEET SECTION 1007 FOR TYPE 1 AGGREGATE OF THE MODOT STANDARD SPECIFICATIONS.
10. MIN. 4 TESTS REQUIRED PER MATERIAL OR ADDED TESTS MAY BE REQUIRED BY PROFESSIONAL ENGINEER.



CONCRETE PARKING BUMPER
STANDARD DETAIL

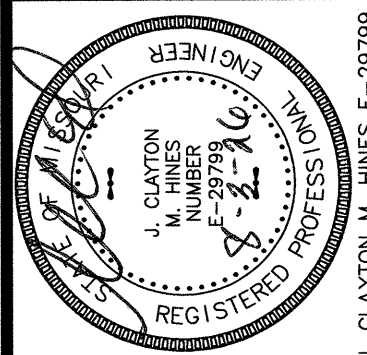
NIXA FIRE STATION #2

PARKING LOT IMPROVEMENTS

NIXA, CHRISTIAN COUNTY, MISSOURI

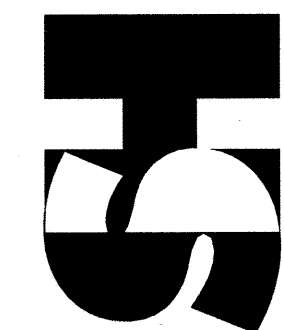
OWNERS/DEVELOPERS:

NIXA FIRE PROTECTION DISTRICT



SHAFFER & HINES, INC.
CERTIFICATE OF AUTHORITY
LICENSE NO. E-1665-D

SHAFFER & HINES
CONSULTING ENGINEERS - PROFESSIONAL LAND SURVEYORS
DBE CERTIFIED COMPANY
P.O. Box 493, Nixa, Missouri, 65714
Tel: (417) 725-4663 - Fax: (417) 725-5230
Email: ch@shafferhines.com



SITE PLAN

DESIGN BY CH
DRAWN BY SM
CHKD BY CH
DATE 2026
SCALE AS SHOWN

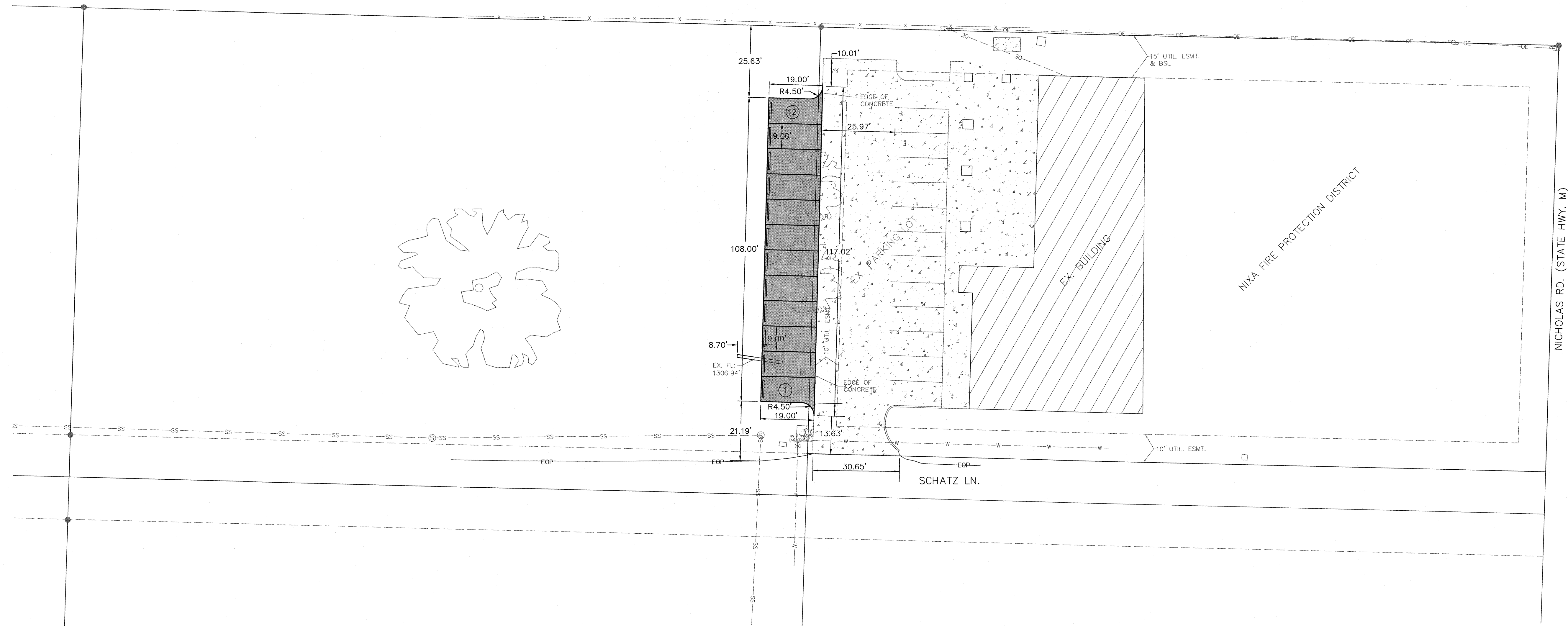
REVISIONS	

JOB NO.

260034

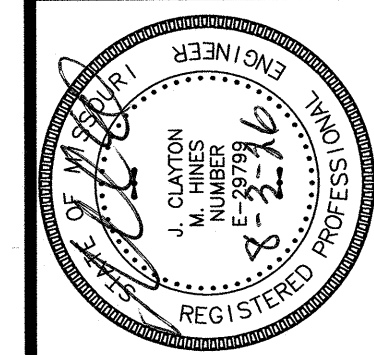
SHEET

4 OF 8



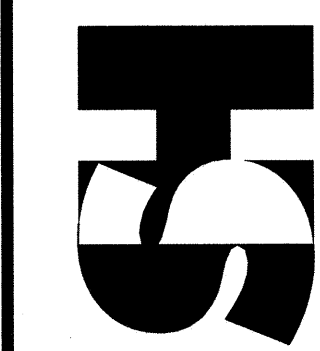
DIMENSION PLAN - PARKING IMPROVEMENTS
SCALE: HOR. 1" = 20'

NIXA FIRE STATION #2
PARKING LOT IMPROVEMENTS
NIXA, CHRISTIAN COUNTY, MISSOURI
OWNERS/DEVELOPERS:
NIXA FIRE PROTECTION DISTRICT



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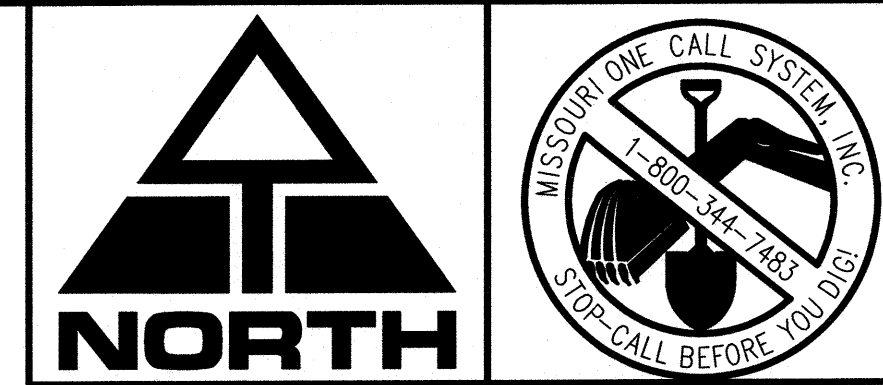
DIMENSION PLAN

DESIGN BY CH
DRAWN BY SM
CHK'D BY CH
DATE 2026
SCALE AS SHOWN

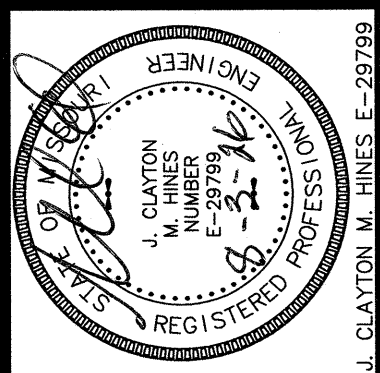
REVISIONS

JOB NO.
260034

SHEET
5 OF 8

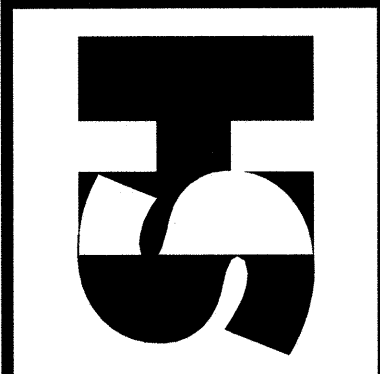


NIXA FIRE STATION #2
PARKING LOT IMPROVEMENTS
NIXA, CHRISTIAN COUNTY, MISSOURI
OWNERS/DEVELOPERS:
NIXA FIRE PROTECTION DISTRICT



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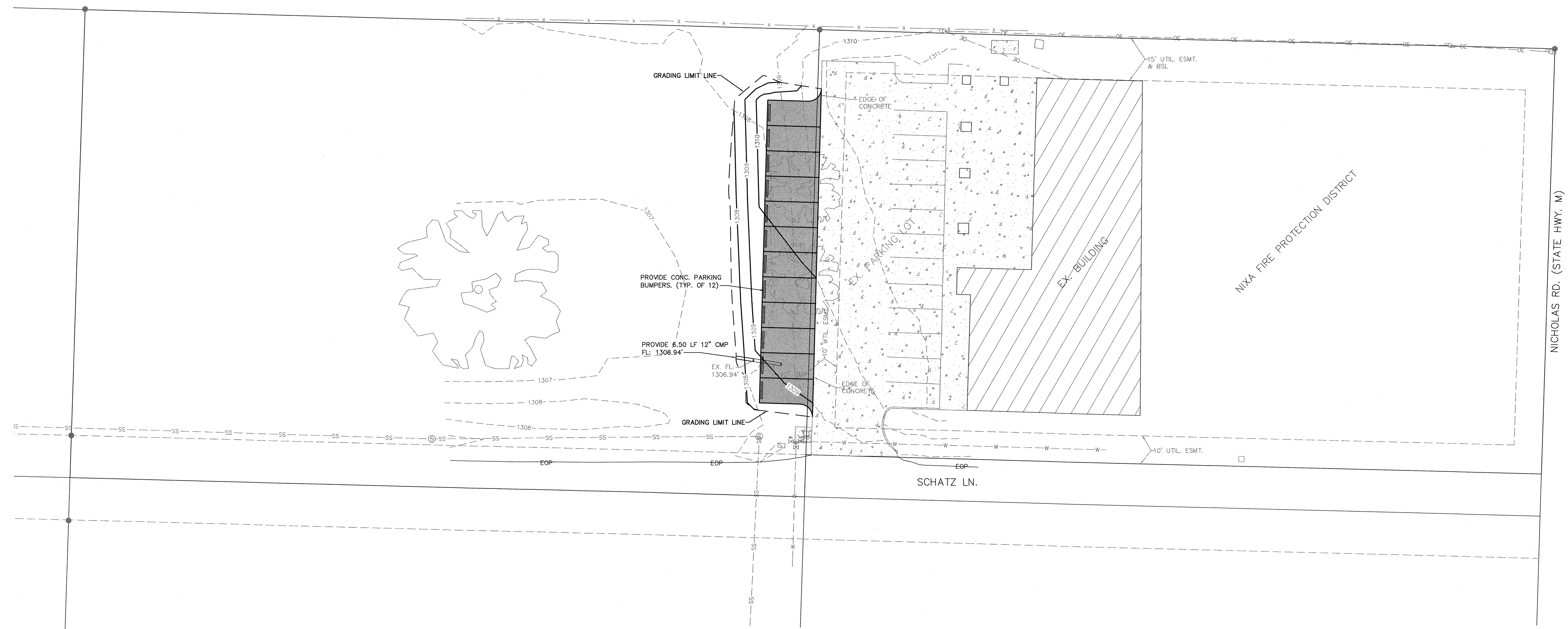
SITE GRADING PLAN

DESIGN BY	CH
DRAWN BY	SM
CHECKED BY	CH
DATE	2026
SCALE	AS SHOWN

REVISIONS

JOB NO.
260034

SHEET
6 OF 8



SITE GRADING PLAN - PARKING IMPROVEMENTS
SCALE: HOR. 1" = 20'

- SITE GRADING NOTES:**
1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ADEQUACY OF THE SUBGRADE SOILS. UNSUITABLE SOIL SHALL BE REMOVED AND REPLACED WITH QUALITY MATERIAL. COMPACTION SHALL BE TESTED BY A QUALIFIED GEOTECHNICAL EVALUATION LABORATORY OR FIRM TO ENSURE STABILITY.
 2. 95% STANDARD PROCTOR COMPACTION SHALL BE MET OR EXCEEDED WITHIN THE STREET AND ALL FILL AREAS. COMPACTION TESTING SHALL BE PERFORMED AT REGULAR INTERVALS AND AT CONTRACTOR'S EXPENSE BY A QUALIFIED GEOTECHNICAL EVALUATION LABORATORY OR FIRM.
 3. CONTRACTOR SHALL PROVIDE PROPER DRAINAGE OF THE STREET PRIOR TO PAVING (SUBGRADE). OBTAIN APPROVAL BY THE ENGINEER OR OTHER APPLICABLE AUTHORITY.
 4. CONTRACTOR SHALL FIELD VERIFY ALL GRADES AND ELEVATIONS. THE MINIMUM ALLOWABLE GRADE IS 0.50%. MAXIMUM GRADES ARE AS LISTED IN THE CITY OF NIXA'S TECHNICAL SPECIFICATIONS.
 5. ADEQUATE COVER SHALL BE MAINTAINED OVER ALL PIPES AND UTILITIES AS RECOMMENDED BY EACH MANUFACTURER.
 6. ANY GRADING ADJACENT TO THE STREET SHALL BE ADJUSTED TO PROVIDE POSITIVE DRAINAGE OF THE STORMWATER.
 7. EXISTING UTILITIES MAY NOT BE SHOWN OR MAY BE IN LOCATIONS OF CONFLICT WITH OTHER UTILITIES. CONTRACTOR SHALL VERIFY LOCATION PRIOR TO CONSTRUCTION AND REFER TO THE UTILITY PLANS.

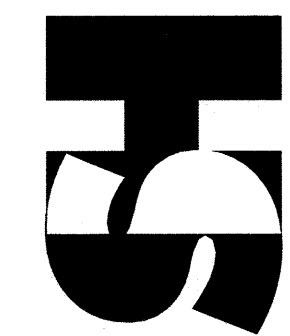


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NIXA, CHRISTIAN COUNTY, MISSOURI
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NIXA FIRE PROTECTION DISTRICT



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SPOT ELEVATION PLAN

DESIGN BY CH
DRAWN BY SM
CHKD BY CH
DATE 2026
SCALE AS SHOWN

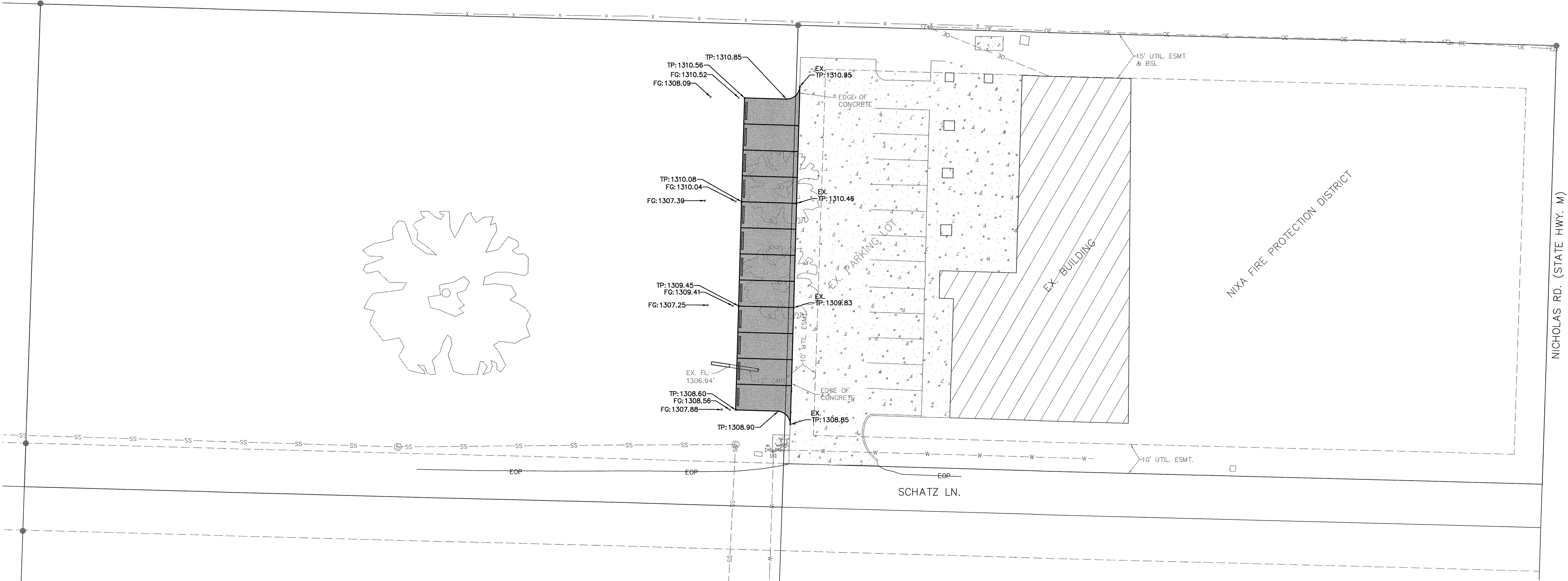
REVISIONS

NO.	DESCRIPTION

JOB NO.
260034

SHEET
7 OF 8

LEGEND
TP = TOP OF PROPOSED PAVEMENT
EX. TP = TOP OF EXISTING PAVEMENT
FG = FINISH GRADE
FL = FLOWLINE



SPOT ELEVATION PLAN - PARKING IMPROVEMENTS
SCALE: HOR. 1" = 20'

NOTE:
DISTURBED AREA = 0.08 AC.

NOTE:
SINCE THE DISTURBED AREA IS LESS THAN 1 ACRE, A MDNR LAND
DISTURBANCE PERMIT (LDP) IS NOT REQUIRED. IF MORE THAN 1 ACRE IS
DISTURBED DURING CONSTRUCTION, THE OWNER SHALL OBTAIN A MDNR LDP.

SEDIMENT AND EROSION CONTROL PLAN

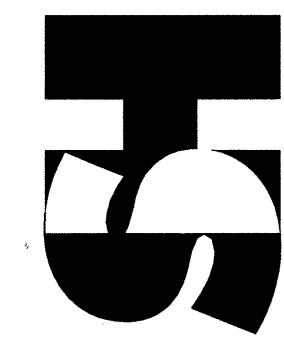


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NIXA, CHRISTIAN COUNTY, MISSOURI
OWNERS/DEVELOPERS:
NIXA FIRE PROTECTION DISTRICT



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Email: ch@shaferhines.com



SEDIMENT AND EROSION
CONTROL PLAN

DESIGN BY CH
DRAWN BY SM
CHECKED BY CH
DATE 2026
SCALE AS SHOWN

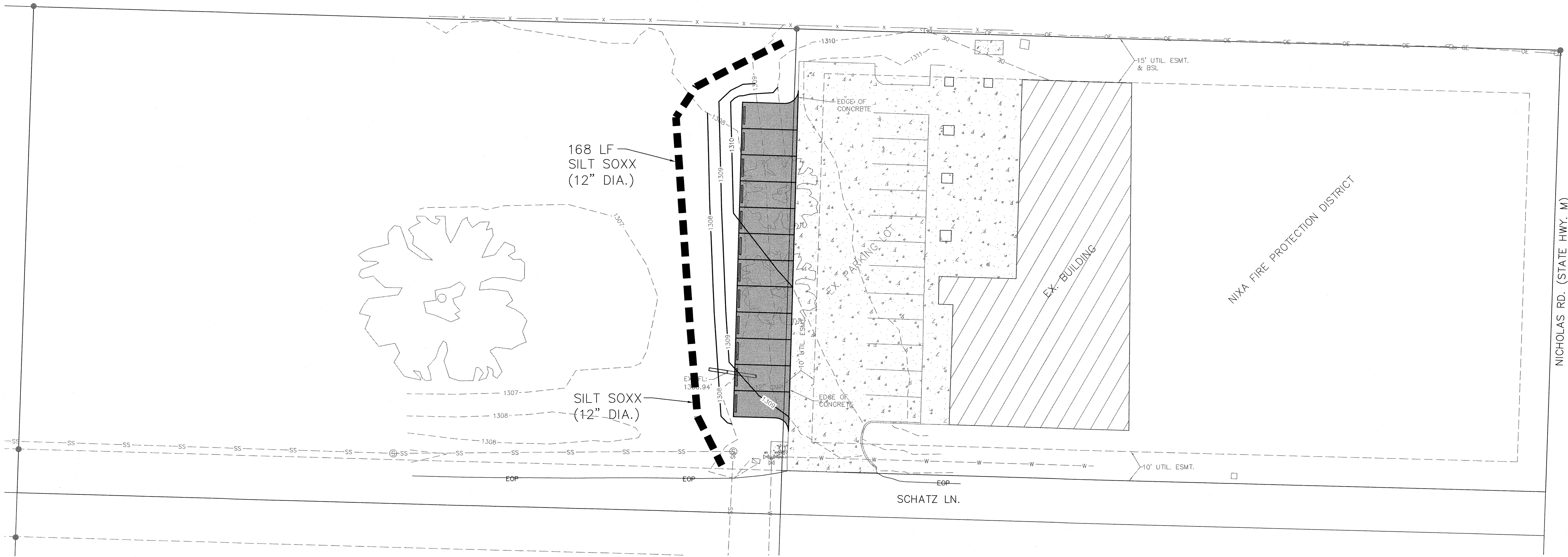
REVISIONS

JOB NO.

260034

SHEET

8 of 8



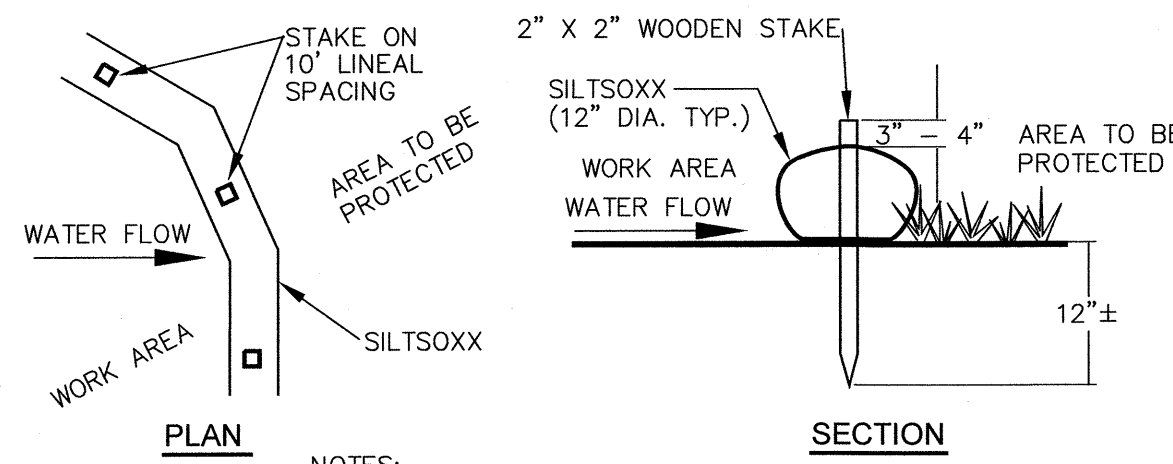
SEDIMENT AND EROSION CONTROL PLAN

SCALE: HOR. 1" = 20'

SEDIMENT AND EROSION CONTROL PLAN

CONSTRUCTION SEQUENCE:

1. INSTALL SILT SOCKS AS SHOWN.
2. STRIP ALL TOPSOIL FROM PROPOSED GRADING AREAS AND STOCKPILE. STOCKPILE SLOPES SHALL NOT BE STEEPER THAN 3:1 A SILT FENCE SHALL BE INSTALLED AROUND THE STOCKPILE TO PREVENT LOSS OF TOPSOIL.
3. GRADE THE ENTIRE SITE AS SHOWN ON THE GRADING PLAN.
4. IF GRADING STOPS FOR A PERIOD OF 14 DAYS OR MORE, SEED AND STRAW AREAS AFFECTED WITH RAPIDLY GROWING PLANTS.
5. CONSTRUCT PARKING LOT.
6. AFTER GRADING IS COMPLETE, PLACE TOPSOIL AT A MINIMUM DEPTH OF 4" IN ALL AREAS EXCEPT IMPERVIOUS AREAS. SEED AND STRAW ALL AREAS.



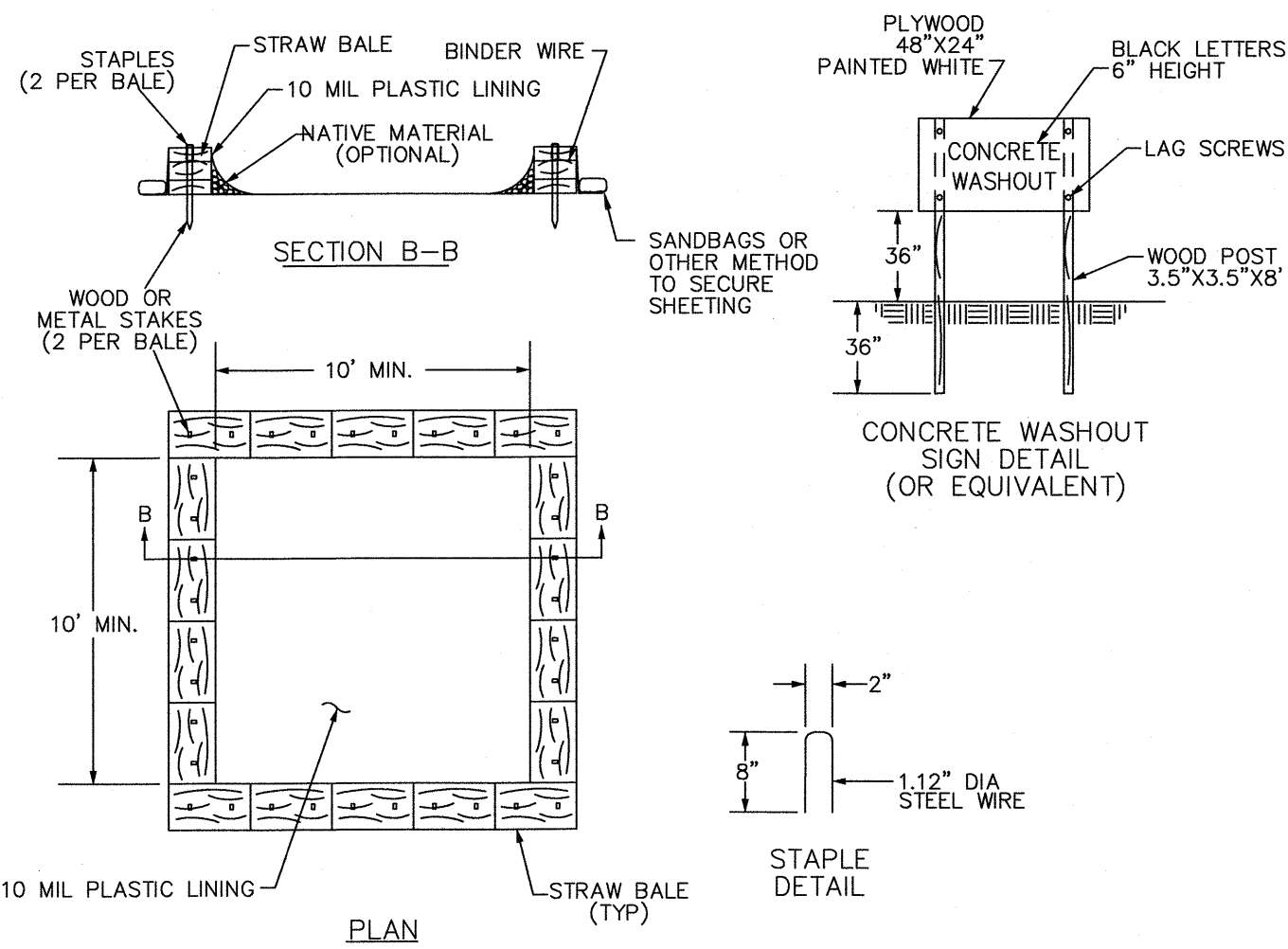
PLAN

SECTION

- NOTES:
1. SILT SOCKS DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.

COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

SILT SOCK



NOTES:

1. OTHER CONFIGURATIONS OF CONCRETE WASHOUTS MAY BE SUBMITTED FOR REVIEW AND POSSIBLE APPROVAL.
2. THE CONCRETE WASHOUT MAY BE CONSTRUCTED EITHER ABOVE OR BELOW GRADE.
3. THE LOCATION OF THE CONCRETE WASHOUT SHALL BE SHOWN ON THE EROSION AND CONTROL PLANS.
4. THE REQUIRED SIZE SHALL BE DETERMINED BY THE DESIGN ENGINEER AND INDICATED ON THE DRAWINGS.
5. THE CONCRETE WASHOUT SHALL HAVE SUFFICIENT VOLUME. DISCHARGE WILL NOT BE ACCEPTABLE.
6. THE CONCRETE WASHOUT SHALL BE INSTALLED PRIOR TO ANY CONCRETE DELIVERY TO THE SITE.
7. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE CONCRETE WASHOUT.
8. THE CONCRETE WASHOUT SHALL NOT BE INSTALLED WITHIN 50' OF ANY STREAM, WETLAND, STORM DRAINS OR OTHER SENSITIVE AREAS.
9. THE LINER SHALL BE ONE PIECE WITHOUT SEAMS.
10. THE CONCRETE WASHOUT SHALL BE INSPECTED AT LEAST ONCE A WEEK FOR STRUCTURAL INTEGRITY AND ADEQUATE HOLDING CAPACITY. THEY SHALL ALSO BE INSPECTED AFTER HEAVY RAINS.
11. ONLY CONCRETE WASHOUT SHALL BE PLACED INTO THE CONCRETE WASHOUTS.
12. THE HARDENED CONCRETE WASTE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO 75% OF THE WASHOUT'S CAPACITY.
13. AFTER COMPLETION OF ALL CONCRETE WORK, THE CONCRETE WASHOUT FACILITY SHALL BE REMOVED AND PROPERLY DISPOSED OF OFF SITE.

CONCRETE WASH OUT DETAIL

PERMANENT SEEDING

GENERAL: The work covered by this section consists of the furnishing of all labor, materials and equipment necessary for the complete seeding of newly graded areas and areas disturbed by the contractor during construction. Unless otherwise shown on the drawings, all disturbed pasture, grassed areas, and lawns (exclusive of woods and idle fields suitable for cultivation) shall be reseeded with normal plant seed mixtures as specified below.

DESCRIPTIVE SUBMITTALS: Descriptive submittals shall be made for all seeds and fertilizers intended for use on this project.

MATERIALS:

Fertilizer: Fertilizer shall be a commercial carrier of available nutrients. It shall be of the Ureaformaldehyde type, uniform in composition, dry, free-flowing, and in condition for application with suitable applicating equipment.

APPLICATION RATE

Nitrogen (N) 90 lbs/acre
Phosphorous (P) 90 lbs/acre
Potash 90 lbs/acre
Lime 1500 lbs/acre ENM*

* ENM - effective neutralizing material as per State evaluation of quarried rock.

Seed shall be furnished in standard containers and labeled in accordance with the U.S. Department of Agriculture "Rules and Regulations Under the Federal Seed Act." Wet, moldy, or otherwise damaged seed will not be acceptable. The permanent seed mixture shall be as follows:

	Mixture	Purity	Germination
Tall Fescue	10%	95%	90%
Kentucky Blue Grass	1%	80%	65%
Crested Red Fescue	5%	95%	90%
Wheat or Rye	46%	95%	85%
Annual Rye Grass	38%	98%	90%

The seed shall be free from Johnson grass, Canadian thistle, or field bind weed seed, and shall not contain more than 2 percent of other weed seeds. A certification of these mixtures shall be furnished to the Engineer prior to seeding.

Mulch: Materials for mulch shall consist of native hay, straw, or other approved locally available material. Mulch material which contains an excessive quantity of matured seed of noxious weeds or other species which would grow and be detrimental to overseeding or provide a menace to farm land will not be acceptable. Straw or other mulch material which is fresh or excessively brittle, or in such an advanced stage of decomposition as to smother or retard the growth of grass or the seeded cover crop will not be acceptable. Mulch rate shall be 4,500 lbs. per acre.

GRADING & SEEDING: Unless otherwise specified, all disturbed areas shall be graded with at least 4" of topsoil. Before final raking, areas to be seeded shall be fertilized with the specified mixture by spreading evenly using a mechanical spreader of the rotary type. The area shall then be raked to a smooth even surface, the soil loosened to a depth of at least 1" and seeded. The seed shall be evenly distributed over the area at a rate of 3 pounds per 1,000 square feet using a mechanical seeder. The seeded area shall be maintained as necessary until the project is completed.

Allowable seeding dates are as follows:

Perennial Grasses: March 1 to May 15 or August 15 to October 15
Temporary Cover: May 15 to August 15
Overseeding: October 15 to March 1

TEMPORARY SEEDING

Specifications:

Complete grading before preparing seedbeds and install all necessary erosion control practices, such as dikes, waterways, and basins. Minimize steep slopes because they make seedbed preparation difficult and increase the erosion hazard. If soils become compacted during grading, loosen them to a depth of 6-8 inches using a ripper, harrow, or chisel plow.

Seedbed Preparation:

Good seedbed preparation is essential to successful plant establishment. A good seedbed is well pulverized, loose, and uniform. Where hydroseeding methods are used, the surface may be left with a more irregular surface of large clods and stones.

Liming - Apply lime according to soil test recommendations. If the pH (acidity) of the soil is not known, an application of ground agricultural limestone at the rate of two tons/acre is usually sufficient. Apply limestone uniformly and incorporate into the top 4-6 inches of soil. Soils with a pH of six or higher need not be limited.

Fertilizer - Base application rates on soil tests. When these are not possible, apply a 10-10-10 grade fertilizer at 700-1,000 lb/acre. Both fertilizer and lime should be incorporated into the top 4-6 inches of soil.

Surface roughening - If recent tillage operations have resulted in a loose surface, additional roughening may not be required except to break up large clods. If rainfall causes the surface to become sealed or crusted, loosen it just prior to seeding by disking, raking, harrowing, or other suitable methods. Groove or furrow slopes steeper than 3:1 on the contour before seeding.

Plant Selection:

Annual rye grass, wheat or oats should be used for temporary seeding.

Seeding:

Evenly apply seed using a cyclone seeder (broadcast), drill cultipacker seeder, or hydroseeder. Annual rye grass should be applied at a rate of 120 lbs/acre. Broadcast seeding and hydroseeding are appropriate for steep slopes where equipment cannot be driven. Hand broadcasting is not recommended because of the difficulty in achieving a uniform distribution.

Small grains should be planted no more than one inch deep, and grasses and legumes no more than 1/2 inch. Broadcast seed must be covered by raking or chain dragging, and then lightly firmed with a roller or cultipacker. Hydroseeded mixtures should include a wood fiber (cellulose) mulch.

Mulching:

The use of an appropriate mulch will help ensure establishment under normal conditions and is essential to seeding success under harsh site conditions. Harsh site conditions include:

- a) Seeding in fall or winter cover (wood fiber mulches are not considered adequate for this use).
- b) Slopes steeper than 3:1.
- c) Excessively hot or dry weather.
- d) Adverse soils (shallow, rocky, or high in clay or sand, and
- e) Areas receiving concentrated.

If the area to be mulches is subject to concentrated waterflow, as in channels, anchor mulch with netting.

Maintenance:

Refertilize areas if growth is not adequate. Reseed, refertilize, and mulch immediately following erosion or other damage.