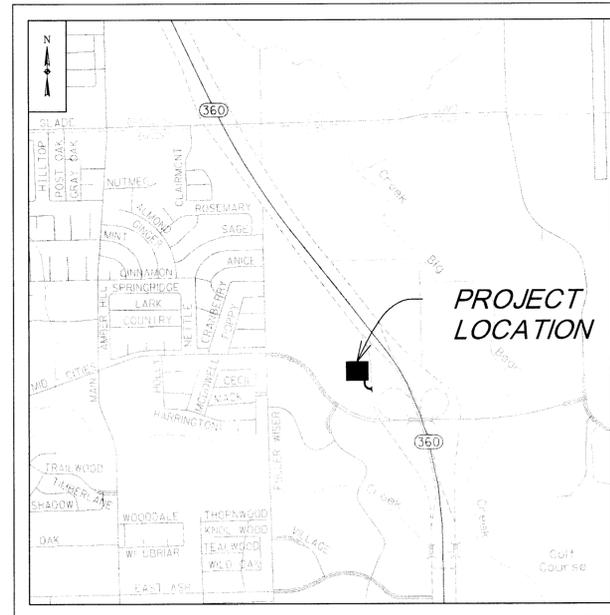


BEAR CREEK PAD PROJECT

HIGHWAY 360 SOUTHBOUND SERVICE ROAD

CITY OF EULESS, TEXAS

BENCHMARKS				
(NAD 83 - TEXAS NORTH CENTRAL ZONE STATE PLANE COORDINATES, NGVD 1929)				
PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
DFW-13	6991395.770	2410632.029	602.76	DFW SURVEY CONTROL #13
DFW-14	6990855.840	2422352.150	518.01	DFW SURVEY CONTROL #14
DFW-15	7001756.491	2421780.593	586.96	DFW SURVEY CONTROL #15
E18	7002095.965	2403447.757	524.928	EULESS CONTROL MON. E18
E23	7001499.343	2408077.421	538.92	EULESS CONTROL MON. E23



LOCATOR MAP

NOT TO SCALE

SHEET INDEX

C1.01	GAS WELL PAD SITE PLAN
C1.02	GAS WELL OPERATIONS SITE PLAN
C2.01	DRAINAGE AREA MAP
C3.01	EROSION CONTROL PLAN
C3.02	TxDOT EC(1)-93 (MOD)
C3.03	TxDOT EC(2)-93
C4.01	GRADING PLAN
C4.02	CITY OF EULESS DETAILS
L1.01	LANDSCAPE PLAN
L1.02	LANDSCAPE DETAILS
M1.01	PHOTOMETRIC ANALYSIS
T1.01	TREE SURVEY
T1.02	TREE SURVEY DETAILS

ENGINEER / SURVEYOR:



1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL (214) 346-6200
FAX (214) 739-0095

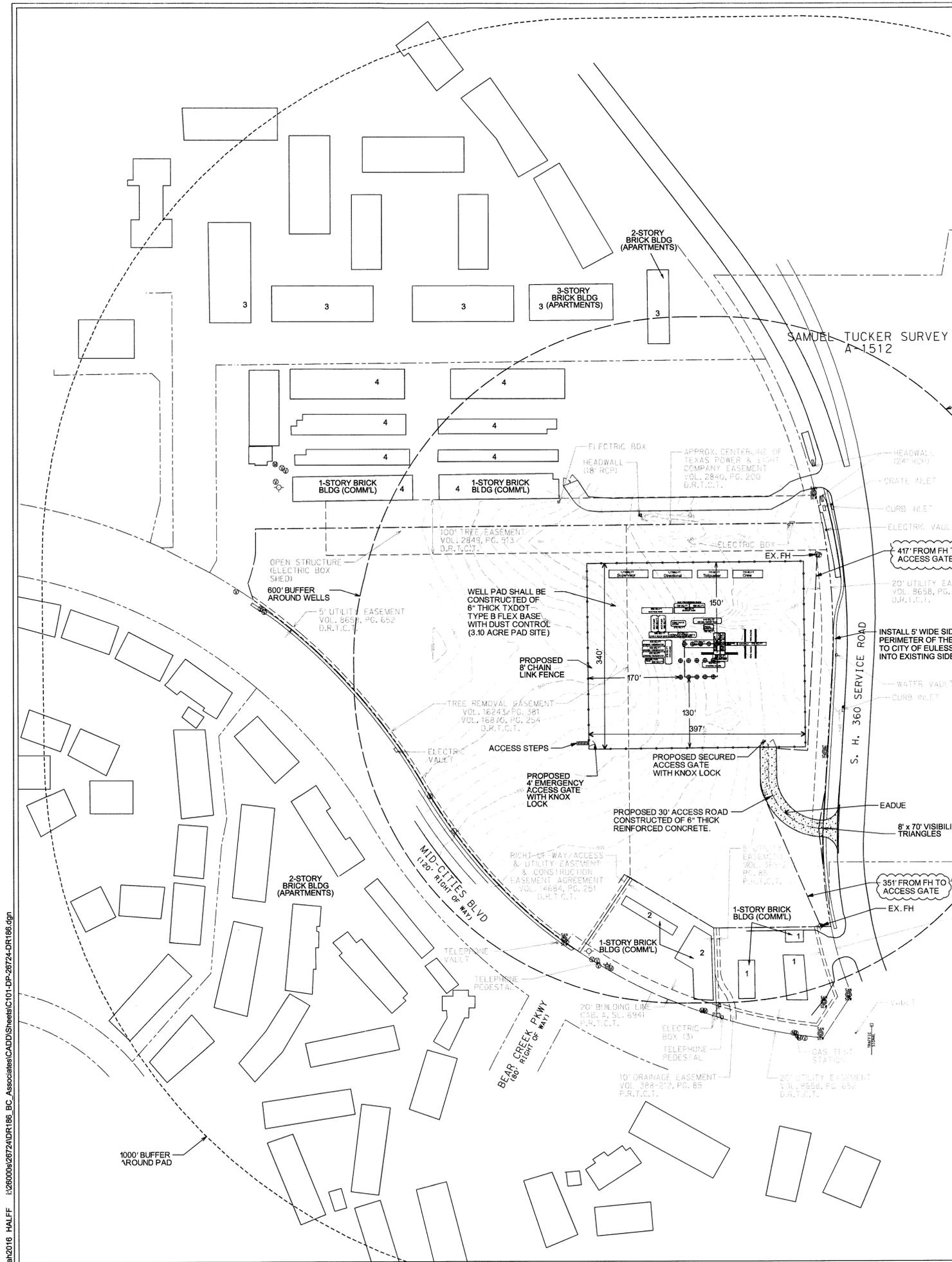
JUNE 2010 AVO. 26724 - DR186



CONTACT: DUSTY ANDERSON, P.E.
100 ENERGY WAY, 17TH FLOOR
FORT WORTH, TEXAS 76102
(817) 502-5645
DUSTY.ANDERSON@CHK.COM

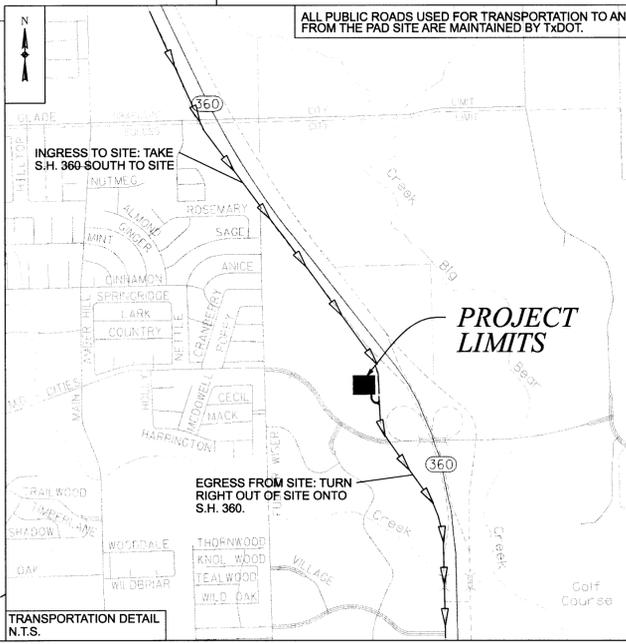
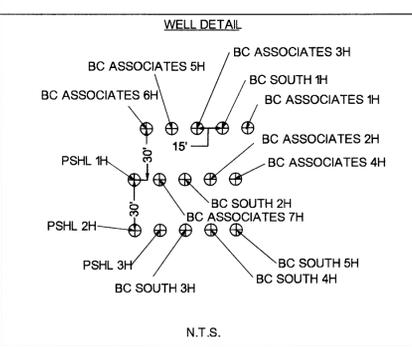
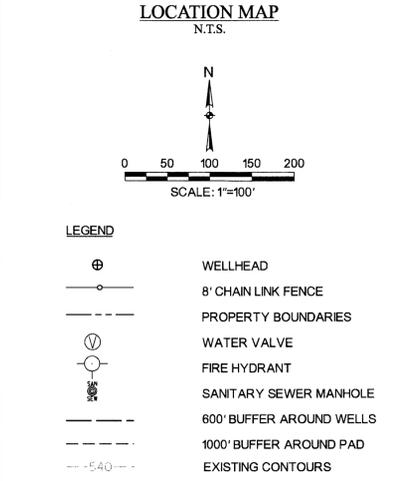
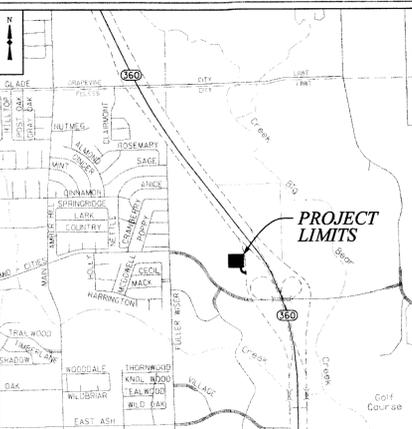


THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JARED L. CANFIELD, P.E. #90958 ON 06-09-2010. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT. THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF HALFF ASSOCIATES, INC., 1201 NORTH BOWSER, RICHARDSON, TEXAS 75081. T&E FIRM #312



OWNERS OF STRUCTURES WITHIN 600' OF WELLS			
NO.	OWNER	OWNER ADDRESS	SITE ADDRESS
1	RADER, HOMER JR	12342 INWOOD RD DALLAS, TX 75244	901 MID-CITIES BLVDE
2	PARAN VISION INVESTMENT INC	801E MID CITIES BLVDE EULESS, TX 76039	801 MID-CITIES BLVDE
3	UDR MANDOLIN LP	1745 SHEA CENTER DR STE 200 LITTLETON, CO 80129	2525 STATE HWY 360
4	BEAR CREEK STORAGE PARTNERS	900 W SAN MATEO RD STE 200 SANTA FE, NM 87505	701 MID-CITIES BLVDE

- NOTES:**
- 1) ONSITE PLANIMETRIC AND TOPOGRAPHIC MAPPING WERE TAKEN FROM DATA PROVIDED BY ARREDONDO, ZEPEDA, & BRUNZ DATED JANUARY 2010.
 - 2) PER THE 2009 TARRANT CO. FIRM THERE ARE NO FLOODPLAINS ASSOCIATED WITH THIS SITE.
 - 3) A TREE SURVEY WAS CONDUCTED IN JANUARY 2010 AND A DRAWING DETAILING THE REMOVAL OF EXISTING TREES IS ATTACHED.
 - 4) BUILDING LINES WERE GENERATED FROM THE 2007 LANDSCOR AERIAL AND ARE CONSIDERED APPROXIMATE.
 - 5) THERE WILL BE NO PERMANENT SANITARY FACILITIES ON-SITE. ONLY TEMPORARY FACILITIES WILL BE UTILIZED DURING DRILLING.
 - 6) ALL UTILITY SERVICES TO THIS SITE SHALL BE LOCATED UNDERGROUND, EXCEPT FOR TEMPORARY ABOVE GROUND WATER LINES.
 - 7) NO PERMANENT LIGHT FIXTURES WILL BE INSTALLED ON LOCATION.
 - 8) NO BUILDINGS WILL BE PLACED ON THE PROPERTY WITHOUT FURTHER PERMITTING WITH THE CITY (TYPICAL OPERATIONS DO NOT HAVE PERMANENT BUILDINGS ON THIS SITE).
 - 9) THE DRILLING RIG LAYOUT IS APPROXIMATE. THE ACTUAL LAYOUT MAY BE MODIFIED SLIGHTLY BASED ON SITE SPECIFIC FACTORS.
 - 10) PAD SITE FENCE SHALL NOT RESTRICT FLOW OF RUNOFF. RUNOFF SHALL NOT BE DIRECTED TO ADJACENT PROPERTIES.
 - 11) WITHIN EMERGENCY ACCESS DRAINAGE AND UTILITY EASEMENTS (EADUE) (AKA: FIRE LANE) THE ROADWAY SURFACE, UPGRADE, MARKINGS, AND SIGNAGE SHALL BE MAINTAINED AT ALL TIMES TO ALLOW FOR CLEAR PASSAGE OF EMERGENCY VEHICLES. CLEAR PASSAGE SHALL INCLUDE BOTH HORIZONTAL AND VERTICAL WIDTHS ACCORDING TO CLEARANCES ESTABLISHED IN THE FIRE MARSHALL'S POLICY STATEMENT.
 - 12) ENGINEER: HALFF ASSOCIATES, INC. JARED L. CANUTESON, P.E. 1201 N. BOWSER RD. RICHARDSON, TX 75081 jaredcanuteson@halff.com FAX: (214) 739-0095
 - 13) SURVEYOR: ARREDONDO, ZEPEDA & BRUNZ, L.L.C. 11355 MCCREE ROAD DALLAS, TX 75238 TEL: (214) 341-8900 FAX: (214) 341-9925
 - 14) GAS WELL OPERATOR: CHESAPEAKE OPERATING, INC. 100 ENERGY WAY. FORT WORTH, TX 76102 TEL: (817) 502-5000 FAX: (817) 810-0170
 - 15) PROPERTY OWNER: CHESAPEAKE LAND COMPANY, L.L.C. 6100 N. WESTERN AVE. OKLAHOMA CITY, OK 73154 TEL: (405) 848-8000 FAX: (405) 849-2532



LEGAL DESCRIPTION

BEING 3.10 ACRES OF LAND SITUATED IN THE SAMUEL TUCKER SURVEY, ABSTRACT NUMBER 1512, TARRANT COUNTY, TEXAS, BEING A PORTION OF THAT CERTAIN 13.81 ACRE TRACT OF LAND AS DESCRIBED IN DEED TO CHESAPEAKE LAND DEVELOPMENT COMPANY, AS RECORDED IN INSTRUMENT NO. D209046006 OF THE DEED RECORDS TARRANT COUNTY, TEXAS (D.R.T.C.T.), FORMERLY KNOWN AS FORT WORTH LAND, L.L.C. AS RECORDED IN INSTRUMENT NO. D208192191 OF SAID DEED RECORDS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

COMMENCING AT A FOUND ONE-HALF INCH STEEL REBAR (CONTROLLING MONUMENT, NAD83 GRID NORTHING 7,002,454.02 AND EASTING 2,407,000.21) FOR THE NORTHWESTERLY CORNER OF SAID 13.81 ACRE TRACT, FROM WHICH A FOUND ONE-HALF INCH STEEL REBAR (CONTROLLING MONUMENT) BEARS S 00°00'22" W, A DISTANCE OF 36.59 FEET;

THENCE, N 89°28'09" E, ALONG THE NORTHERLY LINE OF SAID 13.81 ACRE TRACT AND THE SOUTHERLY LINE OF LOTS 2 & 3, BLOCK 2, VILLAGES OF BEAR CREEK ADDITION, AN ADDITION TO THE CITY OF EULESS, TEXAS, ACCORDING TO THE PLAT THEREOF RECORDED IN CABINET A, SLIDE 9245, PLAT RECORDS TARRANT COUNTY, TEXAS (P.R.T.C.T.), A DISTANCE OF 1,040.23 FEET TO A FOUND ONE-HALF INCH STEEL REBAR (CONTROLLING MONUMENT) FOR THE NORTHEASTERLY CORNER OF SAID 13.81 ACRE TRACT AND THE SOUTHEASTERLY CORNER OF SAID LOT 3, AND BEING IN THE WESTERLY LINE OF STATE HIGHWAY 360 (A VARIABLE WIDTH RIGHT-OF-WAY);

THENCE, S 26°18'08" W, A DISTANCE OF 78.39 FEET TO A SET T-POST FOR THE POINT OF BEGINNING (NAD83 GRID NORTHING 7,002,393.34 AND EASTING 2,408,005.69) OF THE TRACT OF LAND HEREIN DESCRIBED;

1. THENCE, S 00°31'51" E, A DISTANCE OF 340.00 FEET TO A SET T-POST FOR CORNER;

2. THENCE, S 89°28'09" W, A DISTANCE OF 397.50 FEET TO A SET T-POST FOR CORNER;

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4. THENCE, N 89°28'09" E, A DISTANCE OF 397.50 FEET TO THE POINT OF BEGINNING AND CONTAINING 135,150 SQUARE FEET OR 3.10 ACRES OF LAND, MORE OR LESS.

CHESAPEAKE OPERATING, INC.
BC ASSOCIATES 1H - 7H, BC SOUTH 1H - 5H,
& PSHL 1H - 3H
3.10 ACRE PAD SITE
CASE NUMBER - 10-03-CC

CHESAPEAKE OPERATING, INC
GAS WELL PAD SITE PLAN
BEAR CREEK PAD PROJECT
EULESS, TEXAS

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL: (214) 739-0095
FAX: (214) 739-0095

Revision No.	Date	Description
1	3/19/2010	REVIEW TITLE BLOCK AND VIBRITY
2	3/17/2010	ADD DRAINAGE CALCULATIONS
3	5/13/2010	REVIEW AND APPROVE ALL REVISIONS AND SIGNATURES
4	5/24/2010	REVIEW ACCESS ROAD AND SIGN ACCESS DATE
5	6/12/2010	CITY REQUESTED REVISIONS
6	6/19/2010	CITY REQUESTED REVISIONS

These plans have been reviewed and approved by a Chesapeake Field Representative.

Signature: _____
Printed Name: _____
Date: _____

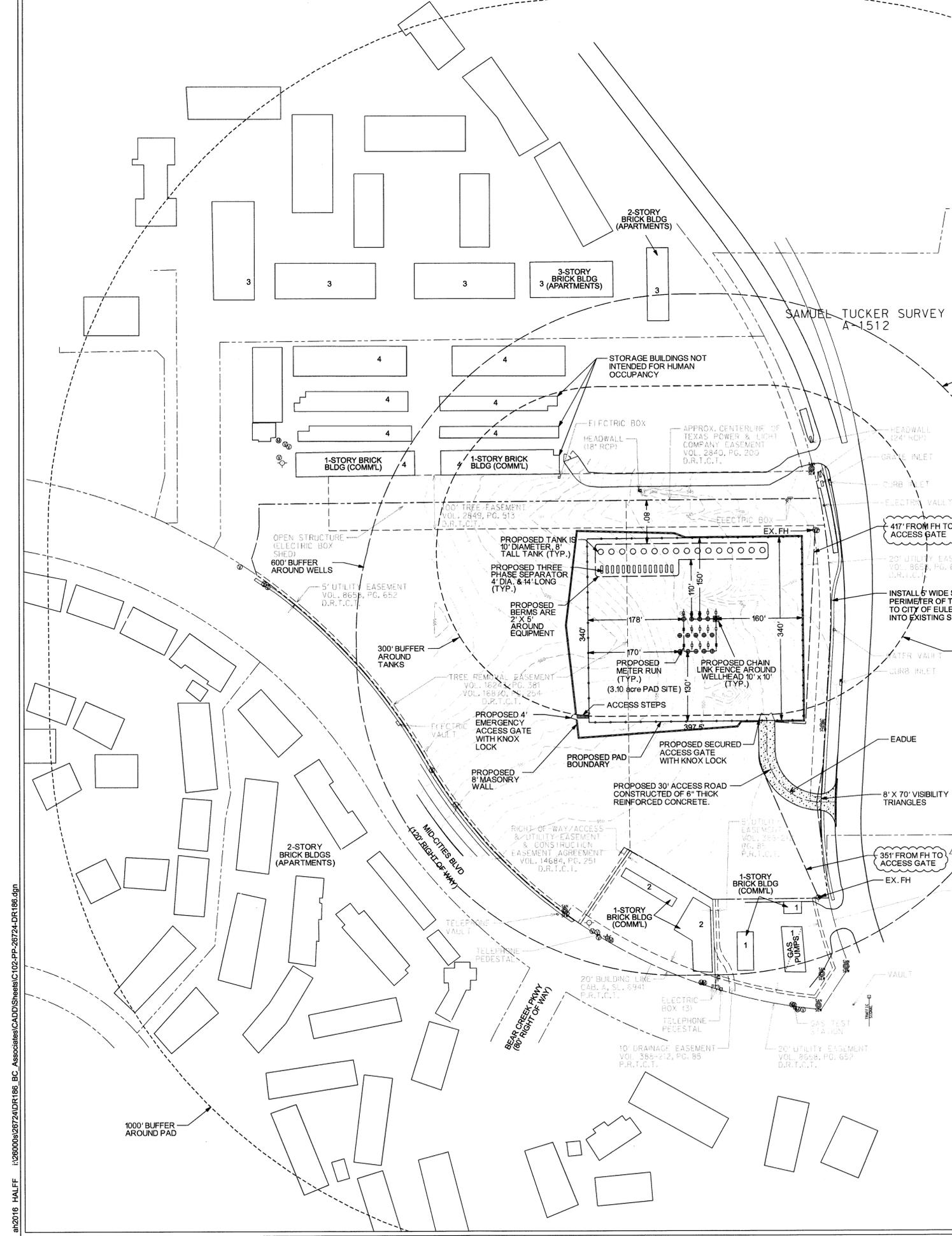
Chesapeake ENERGY

STATE OF TEXAS
JARED L. CANUTESON
Professional Engineer
No. 90708
Exp. 08/31/2012

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JARED L. CANUTESON FOR THE PROVISION OF ENGINEERING SERVICES TO THE RESPONSIBLE ENGINEER IN AN OFFICE UNDER THE TEXAS ENGINEERING PRACTICE ACT. THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICE OF HALFF ASSOCIATES, INC., 1201 NORTH BOWSER, RICHARDSON, TEXAS 75081. TIME FIRM # 312.

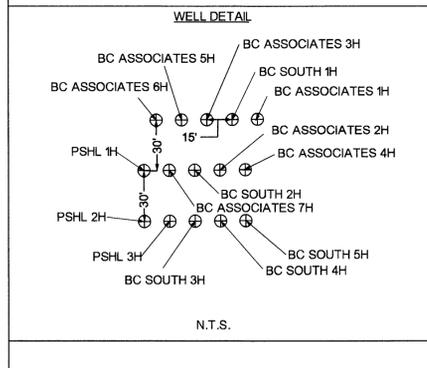
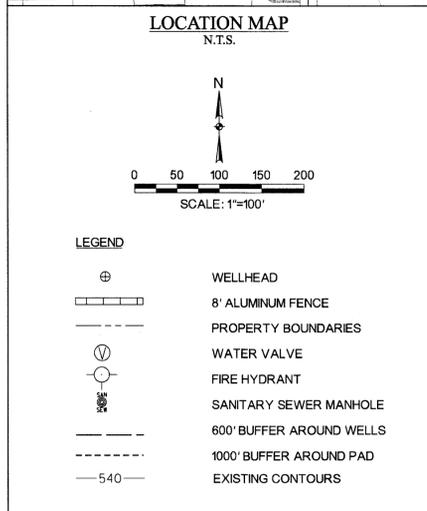
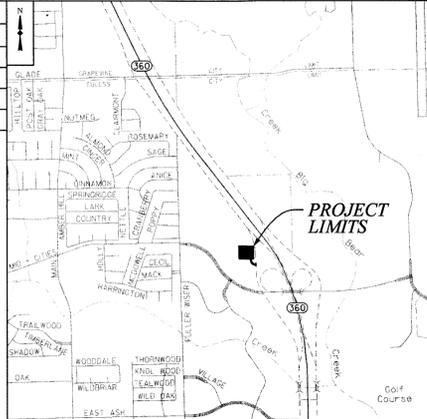
Project No.: 26724 / DR186
Issued: 06 / 09 / 2010
Drawn By: BDL
Checked By: JME
Scale: AS NOTED
Sheet Title: GAS WELL PAD SITE PLAN
C1.01
Sheet Number

8/20/16 HALFF I:\260008\26724\DR186_BC_Associates\CADD\Sheets\C101-DR-26724-DR186.dgn



NO.	OWNER	OWNER ADDRESS	SITE ADDRESS
1	RADER, HOMER J JR	12342 INWOOD RD DALLAS, TX 75244	901 MID-CITIES BLVDE
2	PARAN VISION INVESTMENT INC	801E MID CITIES BLVDE EULESS, TX 76039	801 MID-CITIES BLVDE
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4	BEAR CREEK STORAGE PARTNERS	900 W SAN MATEO RD STE 200 SANTA FE, NM 87505	701 MID-CITIES BLVDE

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 - 13) SURVEYOR: ARREDONDO, ZEPEDA & BRUNZ, L.L.C. 1355 MCCREE ROAD DALLAS, TX 75238 TEL: (214) 341-9900 FAX: (214) 341-9925
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LEGAL DESCRIPTION

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CHESAPEAKE OPERATING, INC.
BC ASSOCIATES 5H - 6H, BC SOUTH 1H - 3H
3.10 ACRE PAD SITE
CASE NUMBER - 10-02-CC

CHESAPEAKE OPERATING, INC

GAS WELL OPERATIONS SITE PLAN

BEAR CREEK PAD PROJECT

EULESS, TEXAS

HALFF

1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL: (214) 341-9900
FAX: (214) 739-0095

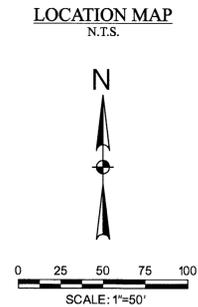
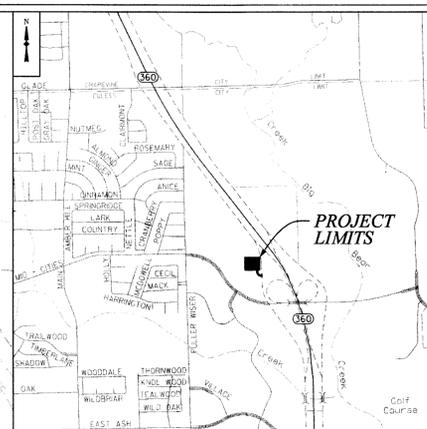
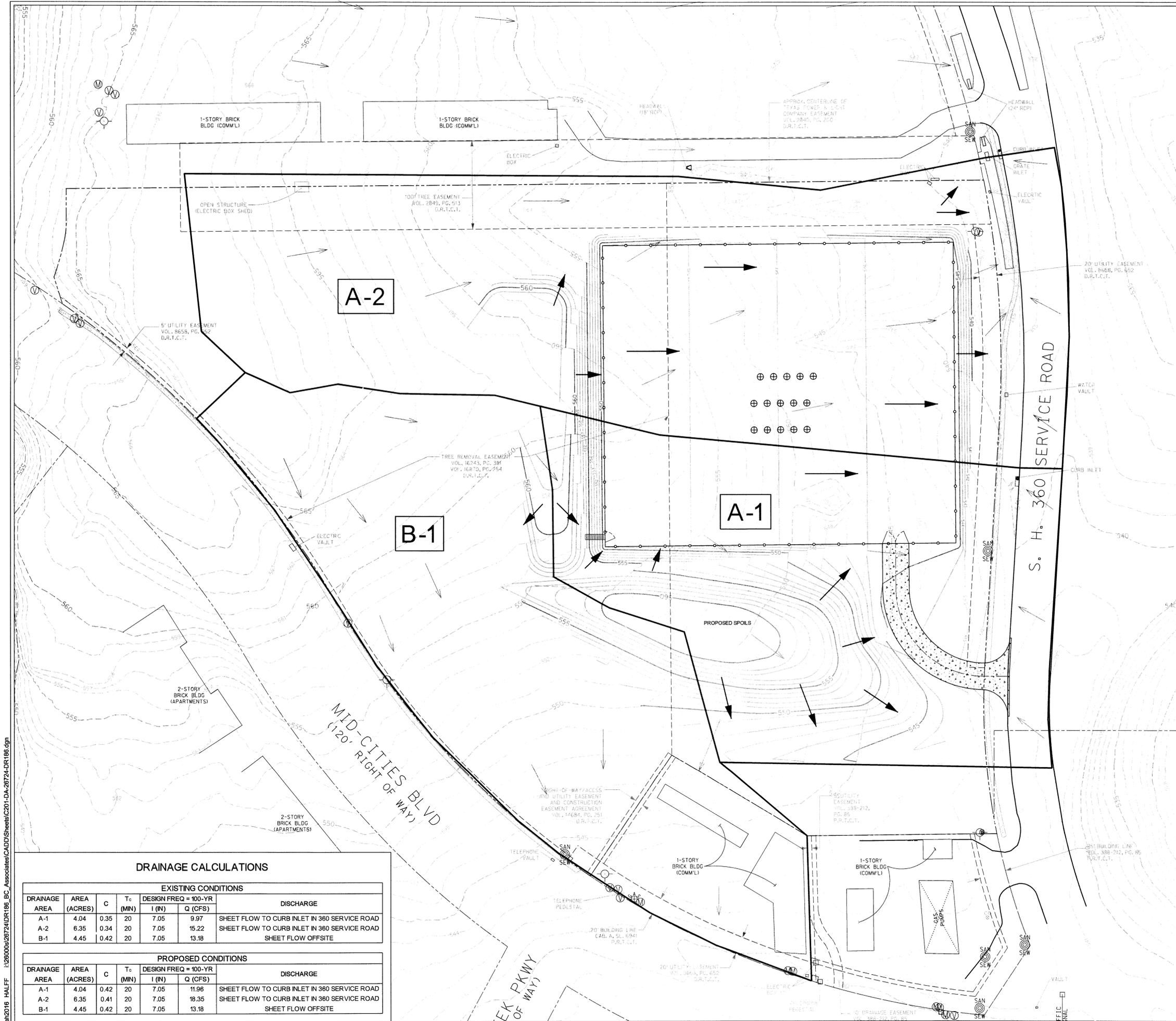
Revision No.	Date	Description
1	3/19/2010	REVISED TITLE BLOCK.
2	3/17/2010	ADD LANE CALLOUT
3	5/11/2010	REMOVE MESSY WALL TO COVER WELLS & REPAIR TO BE AVOIDED IN FINAL PERM.
4	5/24/2010	REMOVE ACCESS ROAD AND DIM ACCESS TO WELLS
5	6/12/2010	CITY REQUESTED REVISIONS
6	6/19/2010	CITY REQUESTED REVISIONS

These plans have been reviewed and approved by a Chesapeake Field Representative.

Signature: _____
Printed Name: _____
Date: _____

Project No.: 26724 / DR186
Issued: 06 / 09 / 2010
Drawn By: BDL
Checked By: JME
Scale: AS NOTED
Sheet Title: GAS WELL OPERATIONS SITE PLAN
Sheet No.: C1.02

an2016 HALFF 1:06000526724DR186 BC_Associates\CADD\Sheets\C102_PP-26724-DR186.dgn



LEGEND

- ⊕ PROPOSED GAS WELL
- PROPERTY LINE
- PROPOSED PAD BOUNDARY
- 545- EXISTING CONTOURS
- 540- EXISTING CONTOURS
- DRAINAGE BOUNDARY
- PROPOSED FLOW DIRECTION
- EXISTING FLOW DIRECTION

- GENERAL NOTES:**
- CONTOURS SHOWN ARE THE SURVEYED CONTOURS FROM ARREDONDO, ZEPEDA, & BRUNZ MERGED WITH THE CONTOURS FROM THE 2001 LIDAR MAPPING FOR NCTCOG. THE SURVEYED TOPO DOES NOT COVER THE ENTIRE AREA OF THE DRAINAGE AREA MAP, SO THE NCTCOG CONTOURS ARE SHOWN OUTSIDE OF THAT REGION FOR REFERENCE.
 - CONTRACTOR SHALL NOT ALLOW CONCENTRATION OF RUNOFF TO MID-CITIES BOULEVARD THAT DID NOT PREVIOUSLY EXIST.

DRAINAGE CALCULATIONS

EXISTING CONDITIONS						
DRAINAGE AREA	AREA (ACRES)	C	T _c (MIN)	DESIGN FREQ = 100-YR		DISCHARGE
				I (IN)	Q (CFS)	
A-1	4.04	0.35	20	7.05	9.97	SHEET FLOW TO CURB INLET IN 360 SERVICE ROAD
A-2	6.35	0.41	20	7.05	15.22	SHEET FLOW TO CURB INLET IN 360 SERVICE ROAD
B-1	4.45	0.42	20	7.05	13.18	SHEET FLOW OFFSITE

PROPOSED CONDITIONS						
DRAINAGE AREA	AREA (ACRES)	C	T _c (MIN)	DESIGN FREQ = 100-YR		DISCHARGE
				I (IN)	Q (CFS)	
A-1	4.04	0.42	20	7.05	11.96	SHEET FLOW TO CURB INLET IN 360 SERVICE ROAD
A-2	6.35	0.41	20	7.05	18.35	SHEET FLOW TO CURB INLET IN 360 SERVICE ROAD
B-1	4.45	0.42	20	7.05	13.18	SHEET FLOW OFFSITE

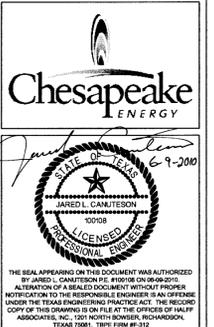
CHESAPEAKE OPERATING, INC
DRAINAGE AREA MAP
BEAR CREEK PAD PROJECT
EULESS, TEXAS



Revision No.	Date	Description
1	3-9-2010	REVISED TOPO, DA MAP, CALCS, ADDED TITLE BLOCK.
2	4-30-2010	REVISED DA MAP AND TABLE.
3	5-10-2010	REVISED ENTRANCE LOCATION.
4	5-24-2010	REVISED ENTRANCE LOCATION AND SPOILS, REVISED TABLE.
5	6-2-2010	CITY REQUESTED REVISIONS

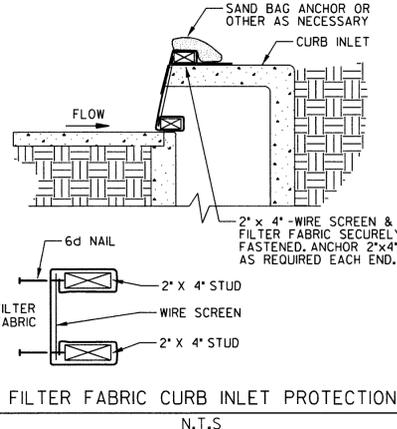
These plans have been reviewed and approved by a Chesapeake Field Representative.

Signature: _____
 Printed Name: _____
 Date: _____



Project No.: 26724 / DR186
 Issued: 06 / 09 / 2010
 Drawn By: JLC
 Checked By: JME
 Scale: AS NOTED
 Sheet Title: DRAINAGE AREA MAP
C2.01
 Sheet Number

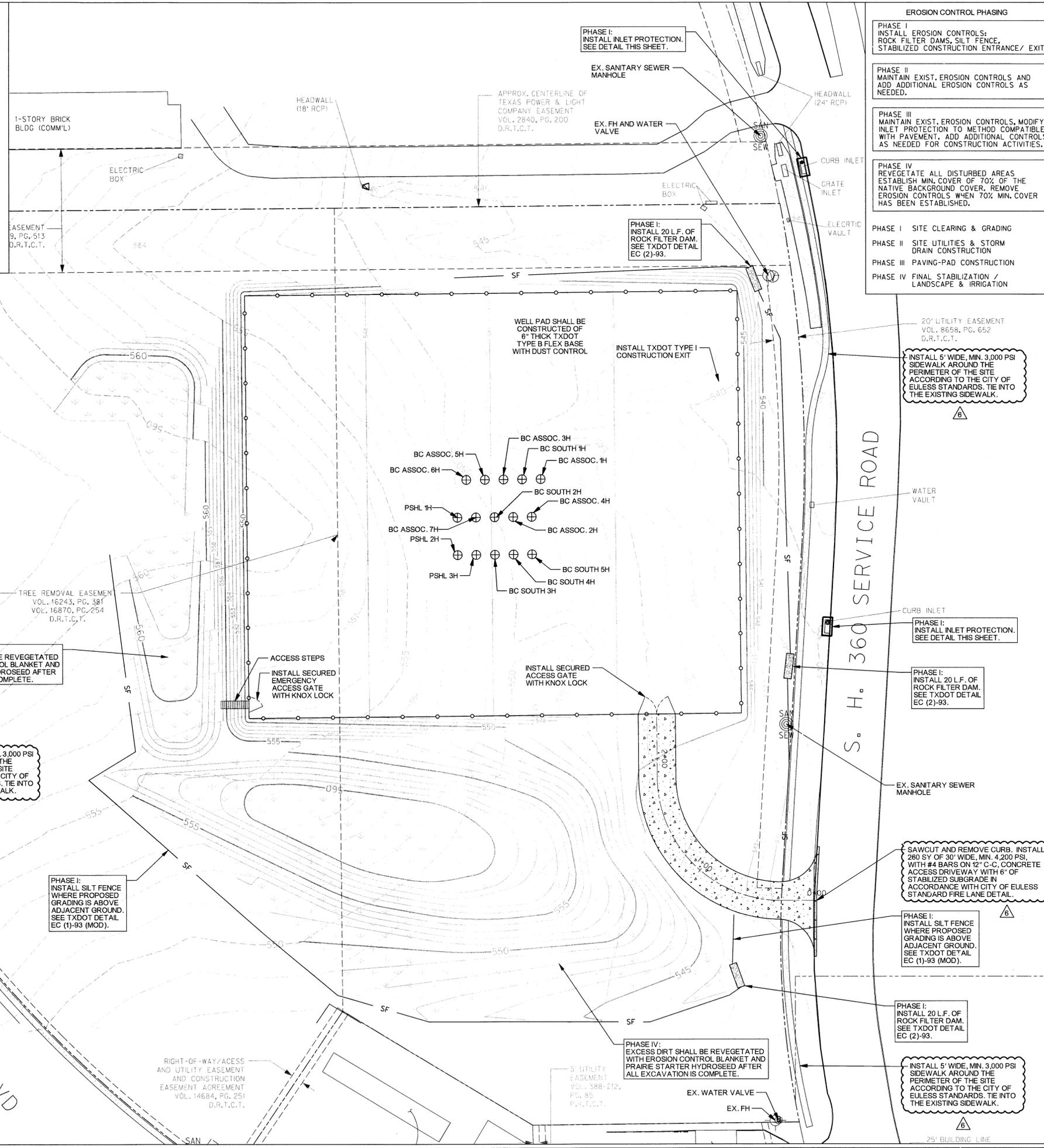
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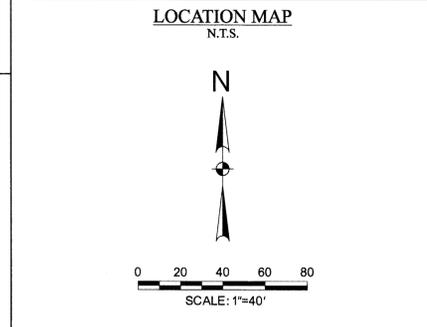
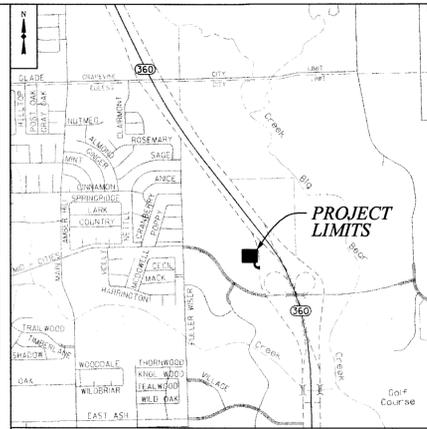
FILTER FABRIC CURB INLET PROTECTION
N.T.S.

LEGEND

- ⊕ PROPOSED GAS WELL
- PROPERTY LINE
- PROPOSED PAD BOUNDARY
- 545- PROPOSED CONTOURS
- 540- EXISTING CONTOURS
- SF PROPOSED SILT FENCE
- [Symbol] CONSTRUCTION EXIT
- [Symbol] ROCK FILTER DAM
- [Symbol] SEEDING AREA



- EROSION CONTROL PHASING**
- PHASE I: INSTALL INLET PROTECTION. SEE DETAIL THIS SHEET.
 - PHASE II: MAINTAIN EXIST. EROSION CONTROLS; ROCK FILTER DAMS, SILT FENCE, STABILIZED CONSTRUCTION ENTRANCE/ EXIT.
 - PHASE III: MAINTAIN EXIST. EROSION CONTROLS AND ADD ADDITIONAL EROSION CONTROLS AS NEEDED.
 - PHASE IV: REVEGETATE ALL DISTURBED AREAS ESTABLISH MIN. COVER OF 70% OF THE NATIVE BACKGROUND COVER, REMOVE EROSION CONTROLS WHEN 70% MIN. COVER HAS BEEN ESTABLISHED.
 - PHASE I: SITE CLEARING & GRADING
 - PHASE II: SITE UTILITIES & STORM DRAIN CONSTRUCTION
 - PHASE III: PAVING-PAD CONSTRUCTION
 - PHASE IV: FINAL STABILIZATION / LANDSCAPE & IRRIGATION



- EROSION CONTROL NOTES:**
- 1) ONSITE PLANIMETRIC AND TOPOGRAPHIC MAPPING WERE TAKEN FROM DATA PROVIDED BY ARREDDONDO, ZEPEDA, & BRUNZ, DATED JANUARY 2010.
 - 2) THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), AS REQUIRED. THE DRAWINGS CONTAINED HEREIN ARE NOT, AND SHOULD NOT BE CONSIDERED TO BE A STORM WATER POLLUTION PREVENTION PLAN. SHOULD THE CONTRACTOR CHOOSE TO USE THE INFORMATION HEREIN, HE SHALL DO SO WITH THE PROVISION THAT HE AT A MINIMUM MEETS ALL OF THE PERMIT REQUIREMENTS FOR CONSTRUCTION ACTIVITIES UNDER THE NPDES TCEQ TPDES PERMIT NO. TXR150000 AND OTHER APPLICABLE PERMITS, RULES, REGULATIONS, AND CODES.
 - 3) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EROSION CONTROL DURING CONSTRUCTION AND FOR OBTAINING ANY REQUIRED CONSTRUCTION RELATED DRAINAGE PERMITS, OR MAKING ANY CONSTRUCTION RELATED NOTIFICATIONS.
 - 4) TEMPORARY STORM DRAINAGE AND/OR EROSION CONTROL MATERIALS SHALL BE SUITABLE FOR THIS APPLICATION AND SHALL BE INSTALLED WITH THE PROPER TECHNIQUES BY THE CONTRACTOR AS REQUIRED BY NCTCOG STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION. TEMPORARY STORM DRAINAGE AND/OR EROSION CONTROL MATERIALS SHALL BE REMOVED BY THE CONTRACTOR, IN ADDITION TO ANY EXCAVATIONS BACKFILLED BY THE CONTRACTOR, IN ACCORDANCE WITH NCTCOG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION WHEN TEMPORARY EROSION CONTROL DEVICES ARE NO LONGER NEEDED. MAINTENANCE OF THE PERMANENT EROSION CONTROL MEASURES AT THE SITE WILL BE ASSUMED BY THE OWNER AT CONTRACT CLOSE-OUT AND ACCEPTANCE OF THE WORK.
 - 5) THE CONTRACTOR SHALL INSPECT STABILIZATION AND EROSION CONTROL MEASURES AT A MINIMUM OF ONCE EVERY 14 DAYS, AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCHES, OR ONCE EVERY 7 DAYS. THE CONTRACTOR SHALL REPAIR INADEQUACIES REVEALED BY THE INSPECTION BEFORE THE NEXT STORM EVENT.
 - 6) THE CONTRACTOR SHALL ADOPT APPROPRIATE CONSTRUCTION SITE MANAGEMENT PRACTICES TO PREVENT THE DISCHARGE OF OILS, GREASE, PAINTS, GASOLINE, AND OTHER POLLUTANTS TO STORM WATER. APPROPRIATE PRACTICES SHALL INCLUDE, BUT NOT BE LIMITED TO: DESIGNATING AREAS FOR EQUIPMENT MAINTENANCE AND REPAIR; COLLECTING WASTES PERIODICALLY; MAINTAINING CONVENIENTLY LOCATED WASTE RECEPTACLES; AND DESIGNATING AND CONTROLLING EQUIPMENT WASH-DOWN.
 - 7) ALL NON-PAVED AREAS SHALL BE SEEDED AND MULCHED WITH EROSION PROTECTION BLANKET AND GRASS BY THE CONTRACTOR IMMEDIATELY UPON COMPLETION OF FINAL GRADING. THIS INCLUDES ALL DITCHES, EMBANKMENTS, AND OTHER DISTURBED AREAS. THE CONTRACTOR SHALL MAINTAIN FINAL GRADING, AND KEEP SEEDED AREAS WATERED UNTIL FULLY ESTABLISHED AND ACCEPTED BY OWNER.
 - 8) THE SPECIFIC PLANT MATERIALS PROPOSED TO PROTECT FILL AND EXCAVATED SLOPES SHALL BE AS INDICATED ON THE PLANS. PLANT MATERIALS MUST BE SUITABLE FOR USE UNDER LOCAL CLIMATE AND SOIL CONDITIONS. IN GENERAL, HYDRO SEEDING OR SODDING BERBERIA GRASS IS ACCEPTABLE DURING THE SUMMER MONTHS (MAY 1 TO AUGUST 30). WINTER RYE OR FESCUE GRASS MAY BE PLANTED DURING TIMES OTHER THAN SUMMER MONTHS AS A TEMPORARY MEASURE UNTIL SUCH TIME AS THE PERMANENT PLANTING CAN BE MADE.
 - 9) PRIOR TO COMMENCING ANY CONSTRUCTION, SILT FENCE AND ROCK CHECK DAMS SHALL BE INSTALLED AT THE LOCATION(S) SHOWN.
 - 10) AT THE COMPLETION OF THE PAVING AND FINAL GRADING, THE DISTURBED AREA(S) SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS.
 - 11) DISTURBED AREAS THAT ARE SEEDED OR SODDED SHALL BE CHECKED PERIODICALLY TO ENSURE THAT GRASS COVERAGE IS PROPERLY MAINTAINED. DISTURBED AREAS SHALL BE WATERED, FERTILIZED, AND RESEEDED OR RESODDED, IF NECESSARY.

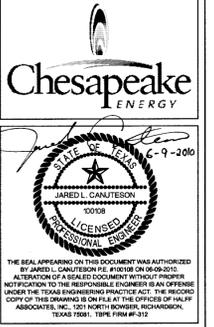
CHESAPEAKE OPERATING, INC
EROSION CONTROL PLAN
BEAR CREEK PAD PROJECT
EULESS, TEXAS



Revision No.	Date	Description
1	3-9-2010	REVISED SPOOLS LOCATION.
2	4-28-2010	ADDED SIDEWALKS; REVISED DRIVE PAD & SPOOLS; ADDED GRASS TYPE
3	5-11-2010	REVISED ENTRANCE LOCATION
4	5-24-2010	REVISED ENTRANCE LOCATION AND SPOOLS; UPDATED EC MEASURES
5	6-2-2010	CITY REQUESTED REVISIONS
6	6-9-2010	CITY REQUESTED REVISIONS

These plans have been reviewed and approved by a Chesapeake Field Representative.

Signature: _____
 Printed Name: _____
 Date: _____

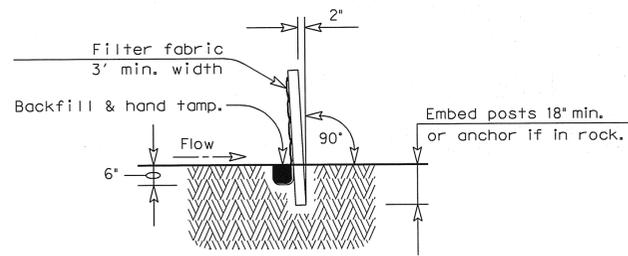


Project No.:	26724 / DR186
Issued:	06 / 09 / 2010
Drawn By:	JLC
Checked By:	JME
Scale:	AS NOTED
Sheet Title:	EROSION CONTROL PLAN
Sheet Number:	C3.01

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LEVELS DISPLAYED	
1	



SECTION A-A

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

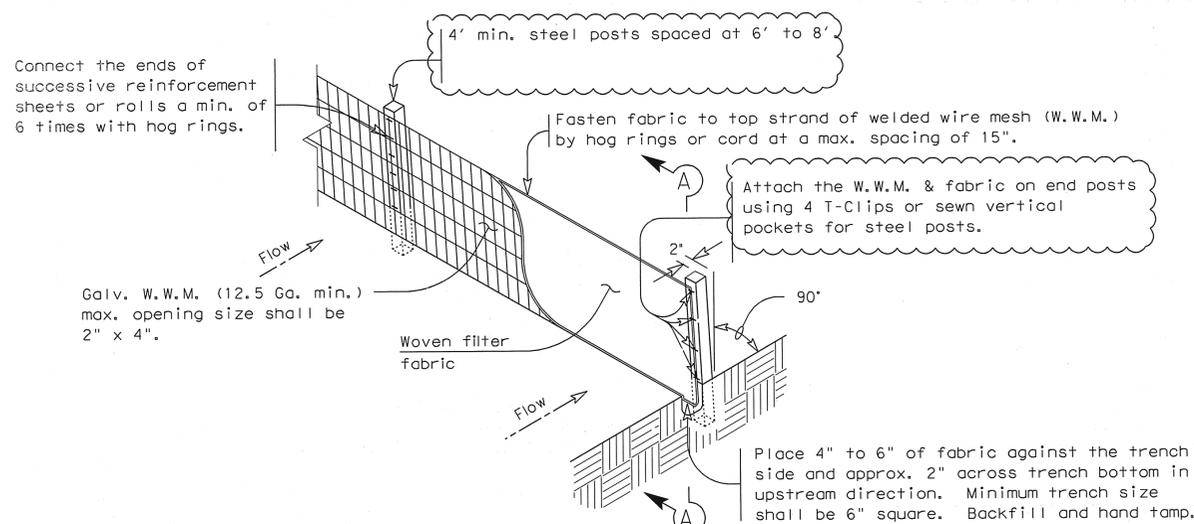
Sediment control fence should be sized to filter a max. flow through rate of 100 GPM/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

PLAN SHEET LEGEND

Sediment Control Fence — SCF —

GENERAL NOTES

- The guidelines shown hereon are suggestions only and may be modified by the Engineer.

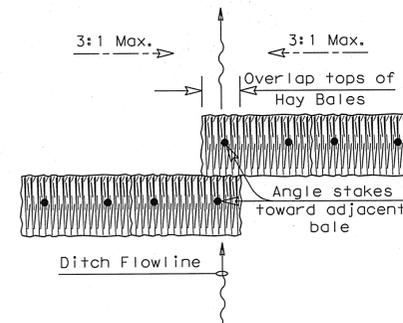


TEMPORARY SEDIMENT CONTROL FENCE

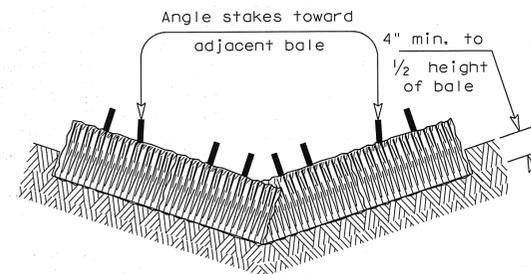
SCF

MODIFICATIONS J.L.C.

- USE STEEL POSTS ONLY FOR TEMPORARY SEDIMENT CONTROL FENCE.



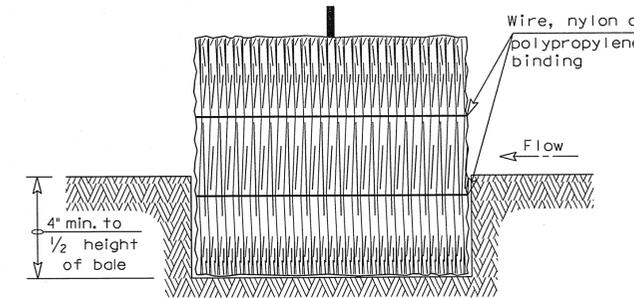
PLAN VIEW



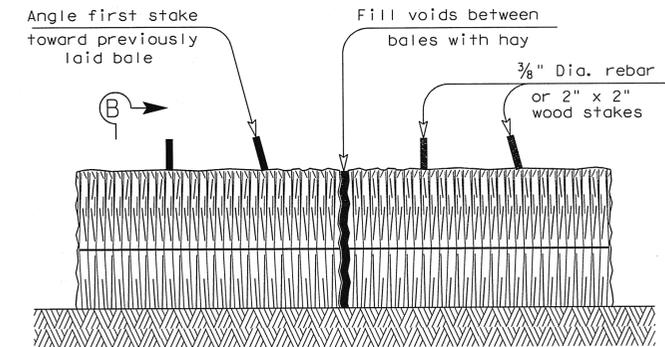
PROFILE VIEW

PLANS SHEET LEGEND

Baled Hay — BH —



SECTION B-B



BALED HAY FOR EROSION CONTROL

BH

GENERAL NOTES

- Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 Lbs.
- Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetative matter.
- Hay bales shall be embedded in the soil a minimum of 4" and where possible 1/2 the height of the bale.
- Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
- Hay bales shall be securely anchored in place with 3/8" Dia. rebar or 2" x 2" wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.

BALED HAY USAGE GUIDELINES

A Baled Hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow thru rate of 5 GPM/FT² of cross sectional area. Baled hay may be used at the following locations:

- Where the runoff approaching the baled hay flows over disturbed soil for less than 100'. If the slope of the disturbed soil exceeds 10%, the length of slope upstream the baled hay should be less than 50'.
- Where the installation will be required for less than 3 months.
- Where the contributing drainage area is less than 1/2 acre.

For Baled Hay installations in small ditches, the additional following considerations apply:

- The ditch sideslopes should be graded as flat as possible to maximize the drainage flowrate thru the hay.
- The ditch should be graded large enough to contain the overtopping drainage when sediment has filled to the top of the baled hay.

Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.

Texas Department of Transportation
Design Division (Roadway)

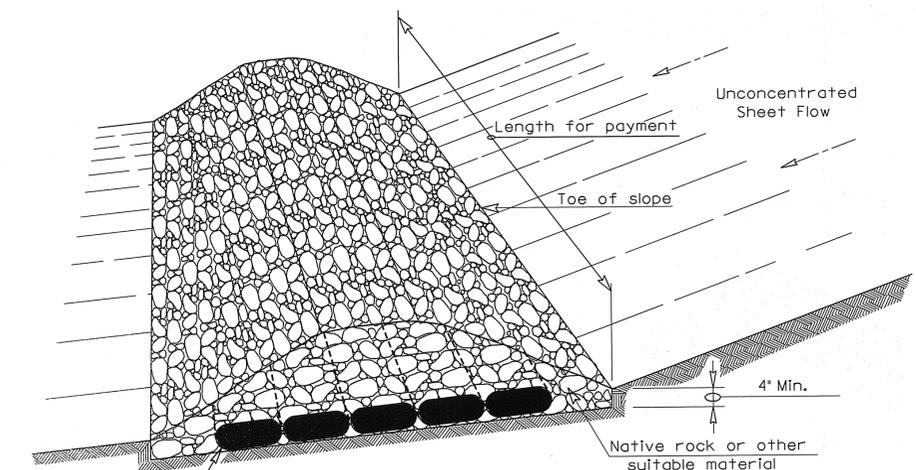
TEMPORARY EROSION,
SEDIMENT AND WATER
POLLUTION CONTROL MEASURES
FENCE & BALED HAY
EC(1)-93 (MOD)



FILE: EC193.DGN	DW: HEJ	CK: HEJ	DR: BGD	CK:
© TxDOT	JUNE 1993	DISTRICT	FEDERAL AID PROJECT	SHEET
REVISIONS				C3.02
COUNTY	CONTROL	SECT	JOB	HIGHWAY

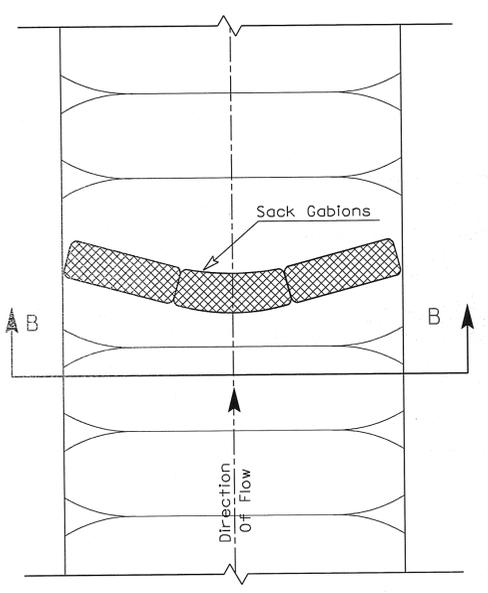
CHESAPEAKE OPERATING, INC.
BC ASSOCIATES 1H-7H, BC SOUTH 1H-5H,
AND PSHL 1H-3H
310 ACRE PAD SITE
CASE NUMBER - 10-03-CC

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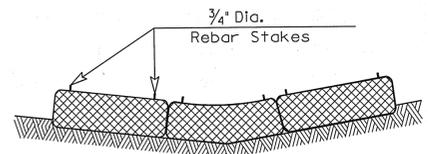


FILTER DAM AT TOE OF SLOPE

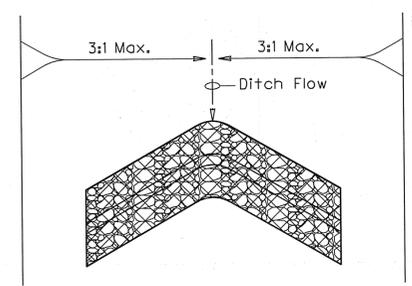
(RFD1) OR (RFD2)
TYPE 1 OR TYPE 2



PLAN VIEW



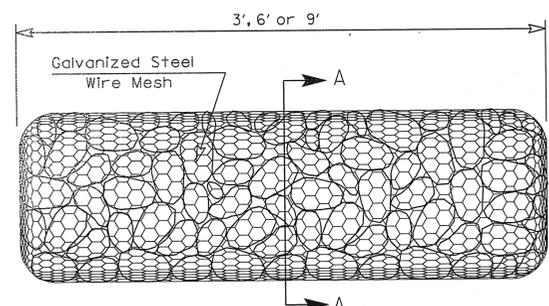
SECTION B-B



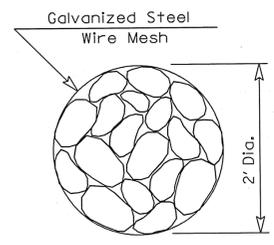
"V" SHAPE
(Plan View)

PLANS SHEET LEGEND

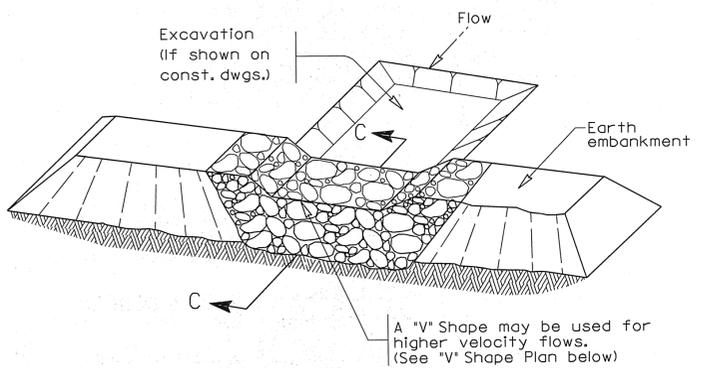
- Type 1 Rock Filter Dam (RFD1)
- Type 2 Rock Filter Dam (RFD2)
- Type 3 Rock Filter Dam (RFD3)



TYPE 4 (SACK GABIONS)

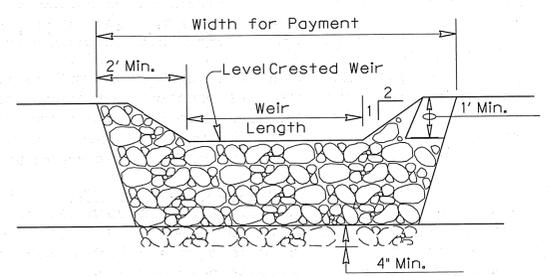


SECTION A-A

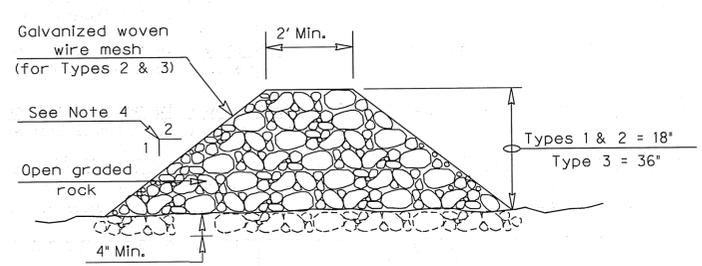


FILTER DAM AT SEDIMENT TRAP

(RFD1) OR (RFD2)
TYPE 1 OR TYPE 2



PROFILE



SECTION C-C

ROCK FILTER DAM USAGE GUIDELINES

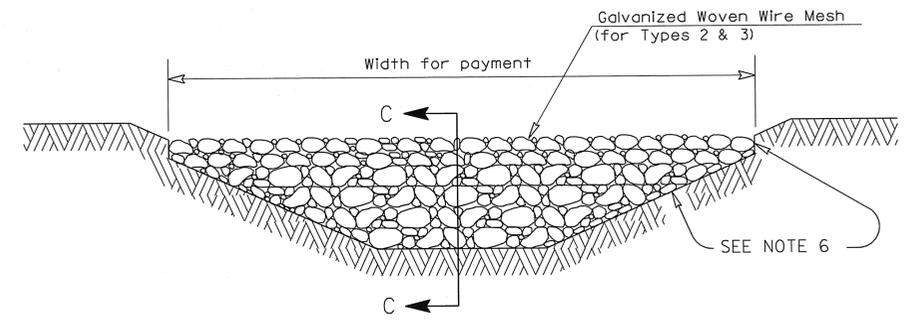
Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT² of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approx. 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions): Type 4 May be used in ditches and smaller channels to form an erosion control dam.



FILTER DAM AT CHANNEL SECTIONS

(RFD1) OR (RFD2) OR (RFD3)
TYPE 1 OR TYPE 2

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slope specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. In stream use the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with 3/4" dia. rebar stakes.
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.



Texas Department of Transportation
Design Division (Roadway)

**TEMPORARY EROSION,
SEDIMENT AND WATER
POLLUTION CONTROL MEASURES
ROCK FILTER DAMS**

EC (2) - 93

FILE#	EC293.DGN	DW: HEJ	CK: HEJ	DW: BGD	CK:
©TxDOT	JUNE 1993	DISTRICT	FEDERAL AID PROJECT	SHEET C3.03	
REVISIONS		COUNTY	CONTROL	SECT	JOB HIGHWAY

CHESAPEAKE OPERATING, INC.
BC ASSOCIATES 1H - 7H, BC SOUTH 1H - 5H,
AND PSHL 1H - 3H
3.10 ACRE PAD SITE
CASE NUMBER - 10-03-CC

CONSTRUCTION QUANTITIES

EARTHWORK	
1. CLEAR AND GRUB	4.75 ACRES
2. CUT	20,000 CY
3. FILL	5,200 CY
3. ONSITE SPOILS	14,800 CY

PAVING	
1. 6" THICK REINFORCED CONCRETE	316 SY
2. 6" THICK TXDOT TYPE B FLEX BASE	15,550 SY

EROSION CONTROL	
1. SILT FENCE	1,540 LF
2. ROCK FILTER DAM	60 LF
3. CURB INLET PROTECTION	2 EA.
4. CONSTRUCTION ENTRANCE / EXIT	1 EA.

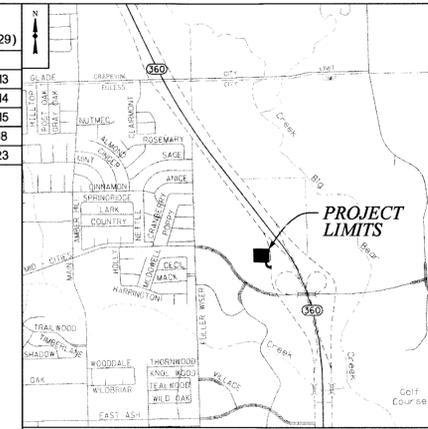
FENCING	
1. 8' HIGH CHAINLINK FENCE	1450 LF
2. 8' HIGH x 30' WIDE ENTRANCE GATE	1 EA.
3. 8' HIGH x 12' WIDE ENTRANCE GATE	1 EA.

LEGEND

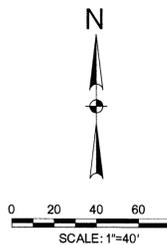
	PROPOSED GAS WELL
	PROPERTY LINE
	PROPOSED PAD BOUNDARY
	PROPOSED CONTOURS
	EXISTING CONTOURS
	CONSTRUCTION EXIT

BENCHMARKS

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
DFW-13	6991395.770	2410632.029	602.76	DFW SURVEY CONTROL #13
DFW-14	6990855.840	2422352.150	518.01	DFW SURVEY CONTROL #14
DFW-15	7001756.491	2421780.593	586.96	DFW SURVEY CONTROL #15
E18	7002095.965	2403447.757	524.928	EULESS CONTROL MON. E18
E23	7001499.343	2408077.421	538.92	EULESS CONTROL MON. E23



LOCATION MAP
N.T.S.



- GENERAL NOTES:**
- ALL CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG) PUBLIC WORKS CONSTRUCTION STANDARDS, OCTOBER 2004.
 - CONTRACTOR IS RESPONSIBLE FOR, AND MUST OBTAIN PRIOR TO CONSTRUCTION, ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY THE CITY OF EULESS.
 - UNLESS OTHERWISE SPECIFIED, ALL SITE WORK DETAILS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD DETAILS OF THE CITY OF EULESS AND CONFORM TO THE REQUIREMENTS OF THE PLANS AND CONTRACT DOCUMENTS.
 - ONSITE PLANIMETRIC AND TOPOGRAPHIC MAPPING WERE TAKEN FROM DATA PROVIDED BY ARREDONDO, ZEPEDA, & BRUNZ, DATED JANUARY 2010.
 - EXISTING UTILITY LOCATIONS SHOWN ARE TAKEN FROM AVAILABLE RECORDS PROVIDED BY THE UTILITY OWNER AND FIELD LOCATIONS OF SURFACE APPURTENANCES. LOCATIONS SHOWN ARE GENERALLY SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT THE SIZE AND LOCATION OF EACH PARTICULAR UTILITY. SOME UTILITY LINES MAY NOT BE SHOWN. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ACTUAL FIELD LOCATION AND PROTECTION OF EXISTING FACILITIES WHETHER SHOWN OR NOT. CONTRACTOR SHALL ALSO ASSUME RESPONSIBILITY FOR REPAIRS TO EXISTING FACILITIES, WHETHER SHOWN OR NOT, DAMAGED BY CONTRACTOR'S ACTIVITIES. DIFFERENCES IN HORIZONTAL OR VERTICAL LOCATION OF EXISTING UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL EXPENSE.
 - THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY MONUMENTATION AND PRIMARY CONTROL. ANY SUCH POINTS WHICH THE CONTRACTOR BELIEVES WILL BE DESTROYED SHALL BE HAVING OFFSET POINTS ESTABLISHED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY MONUMENTATION DESTROYED BY THE CONTRACTOR SHALL BE REESTABLISHED AT HIS EXPENSE.
 - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO:
 - A. PREVENT ANY DAMAGE TO PRIVATE PROPERTY AND PROPERTY OWNER'S POLES, FENCES, SHRUBS, ETC.
 - B. PROVIDE ACCESS TO ALL DRIVES DURING CONSTRUCTION.
 - C. PROTECT ALL UNDERGROUND UTILITIES TO REMAIN IN SERVICE.
 - D. NOTIFY ALL UTILITY COMPANIES AND VERIFY LOCATION OF ALL UTILITIES PRIOR TO START OF CONSTRUCTION.
 - BARRICADING AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART VI IN PARTICULAR. TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF THE CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC SAFETY MEASURES FOR WORK ON PROJECT.
 - THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS GOVERNING EXCAVATION. THE CONTRACTOR SHALL PROVIDE DETAILED PLANS AND SPECIFICATIONS FOR TRENCH SAFETY SYSTEMS THAT COMPLY WITH APPLICABLE LAWS GOVERNING EXCAVATION. THESE PLANS SHALL BE SEALED BY AN ENGINEER EXPERIENCED IN THE DESIGN OF TRENCH SAFETY SYSTEMS AND LICENSED BY THE STATE OF TEXAS. SUBMIT PLAN TO THE OWNER PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASPECTS OF WORK RELATED TO EXCAVATION.
 - CONTRACTOR SHALL MAINTAIN DRAINAGE AT ALL TIMES DURING CONSTRUCTION. PONDING OF WATER IN STREETS, DRIVES, TRUCK COURTS, TRENCHES, ETC., WILL NOT BE ALLOWED.
 - PAVEMENT REMOVAL AND REPAIR SHALL CONFORM TO THE CITY OF EULESS REQUIREMENTS. ALL SAWCUTS SHALL BE FULL DEPTH CUTS. CONTRACTOR SHALL MAKE EFFORTS TO PROTECT CONCRETE AND/OR ASPHALT EDGES. ANY LARGE SPALLED OR BROKEN EDGES SHALL BE REMOVED BY SAWCUTTING PAVEMENT PRIOR TO REPLACEMENT.
 - ANY DAMAGES THAT MAY OCCUR TO REAL PROPERTY OR EXISTING IMPROVEMENTS SHALL BE RESTORED BY THE CONTRACTOR TO AT LEAST THE SAME CONDITION THAT THE REAL PROPERTY OR EXISTING IMPROVEMENTS WERE IN PRIOR TO THE DAMAGES. THIS RESTORATION SHALL BE SUBJECT TO THE OWNER'S APPROVAL. MOREOVER, THIS RESTORATION SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION TO THE CONTRACTOR. RESTORATION SHALL INCLUDE, BUT NOT BE LIMITED TO, REGRASSING, REVEGETATION, REPLACING FENCES, REPLACING TREES, ETC.
 - CONTRACTOR SHALL MAINTAIN EXISTING SANITARY SEWER AND WATER SERVICE AT ALL TIMES DURING CONSTRUCTION.
 - CONTRACTOR SHALL LOCATE AND ADJUST EXISTING UTILITY MANHOLES, LIDS, CLEANOUTS, WATER VALVES AND OTHER SURFACE APPURTENANCES AS REQUIRED FOR NEW CONSTRUCTION. CONTRACTOR SHALL COORDINATE UTILITY ADJUSTMENTS WITH OTHER DISCIPLINES AND THE APPROPRIATE UTILITY AGENCIES AND PROVIDE FOR ALL FEES FOR PERMITS, CONNECTIONS, INSPECTIONS, ETC.
 - CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH UTILITY COMPANIES FOR ADJUSTMENT OF EXISTING SANITARY SEWER CLEANOUTS, WATER METERS, AND ANY OTHER APPURTENANCES TO NEW GRADE AS REQUIRED.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, INSPECTION AND TESTING REQUIRED BY THE OWNER AND/OR THE CITY OF EULESS.
 - ALL UTILITY SERVICES TO THIS SITE SHALL BE LOCATED UNDERGROUND, EXCEPT FOR TEMPORARY ABOVE GROUND WATER LINES.

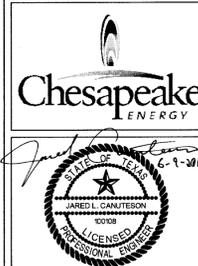
CHESAPEAKE OPERATING, INC
GRADING PLAN
BEAR CREEK PAD PROJECT
EULESS, TEXAS



Revision No.	Date	Description
1	3-9-2010	DESCRIPTION CHANGED
2	4-28-2010	ADDED SIDEWALK, REVISED DRIVE, PAD, & SHOULDER, ADDED GRASS TYPE
3	5-13-2010	REVISED ENTRANCE LOCATION
4	5-24-2010	CITY REQUESTED REVISIONS
5	6-2-2010	CITY REQUESTED REVISIONS
6	6-9-2010	CITY REQUESTED REVISIONS

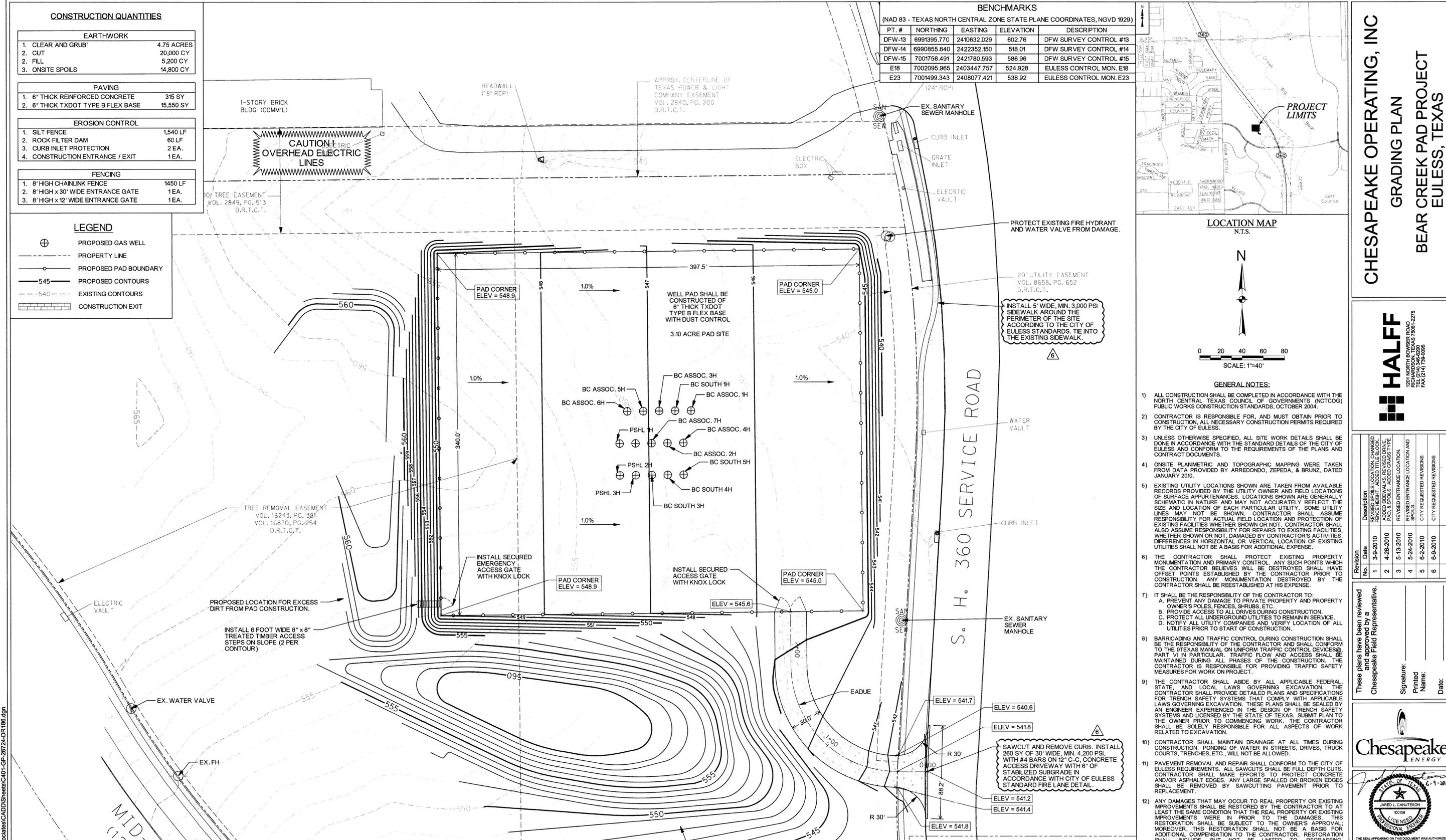
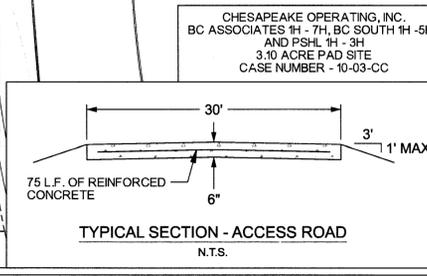
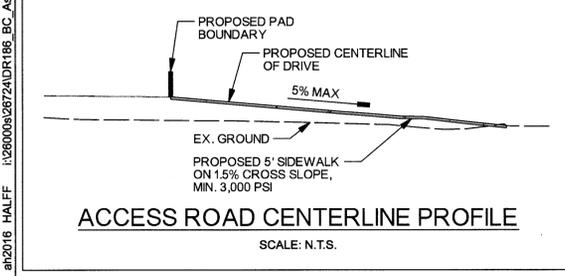
These plans have been reviewed and approved by a Chesapeake Field Representative.

Signature: _____
Printed Name: _____
Date: _____

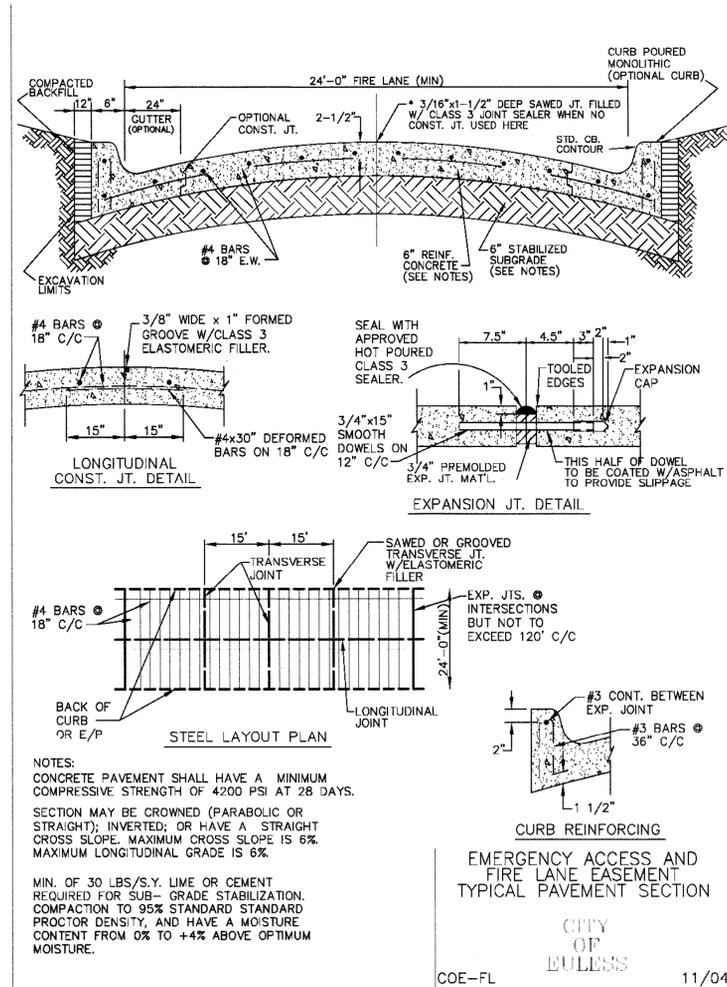


Project No.: 26724 / DR186
 Issued: 06 / 09 / 2010
 Drawn By: JLC
 Checked By: JME
 Scale: AS NOTED
 Sheet Title: GRADING PLAN
C4.01
 Sheet Number

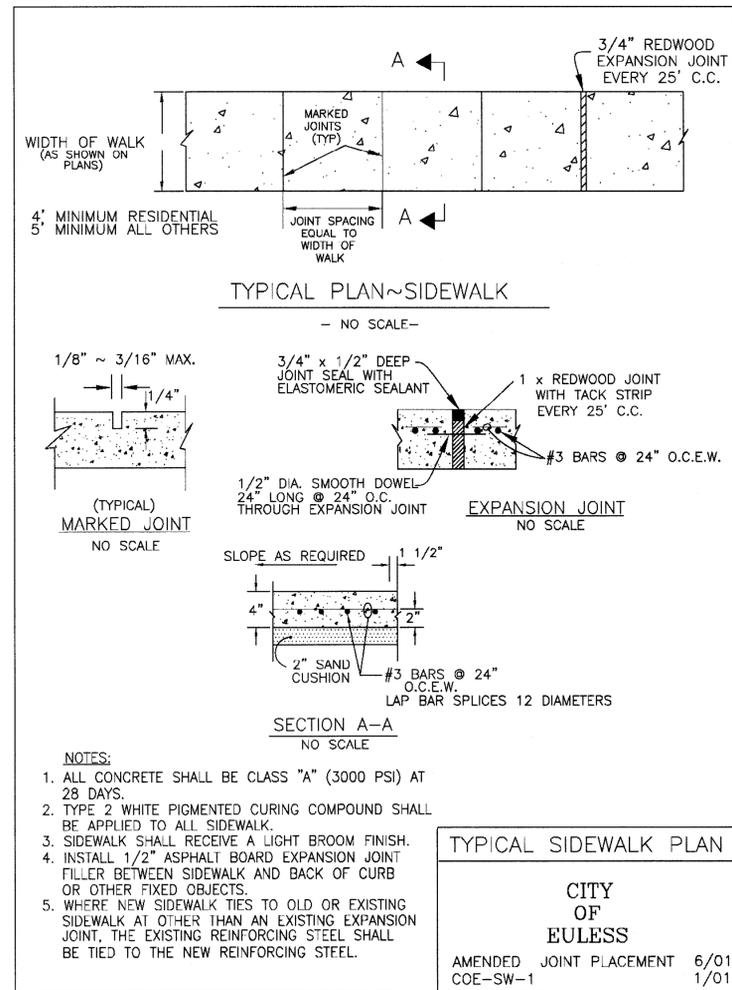
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CHESAPEAKE OPERATING, INC
 CITY OF EULESS DETAILS
 BEAR CREEK PAD PROJECT
 EULESS, TEXAS



Revision No.	Date	Description

These plans have been reviewed and approved by a Chesapeake Field Representative.

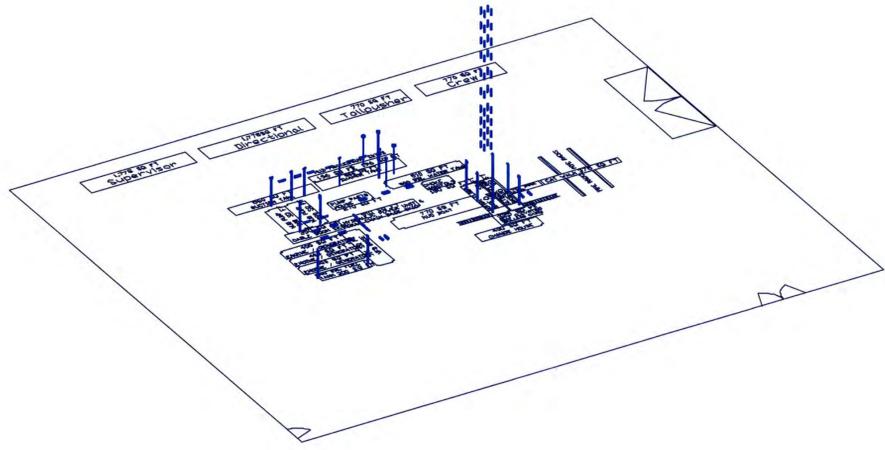
Signature: _____
 Printed Name: _____
 Date: _____



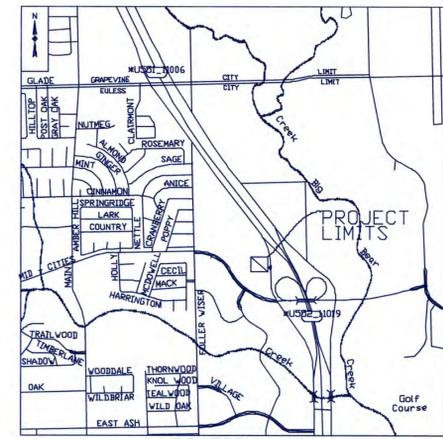
THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JARED L. CANLITSON P.E. #10008 ON 06-09-2010. ALTERATION OF A SEAL OR DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT. THE RECORDED COPY OF THIS DRAWING IS ON FILE IN THE OFFICE OF THE PROFESSIONAL ENGINEER, 1501 NORTH MOSSBROOK, RICHARDSON, TEXAS 75081. TSP# PFORM #P-312

Project No.:	28724 / DR188
Issued:	06 / 09 / 2010
Drawn By:	BDL
Checked By:	JME
Scale:	AS NOTED
Sheet Title	CITY OF EULESS DETAILS
Sheet Number	C4.02

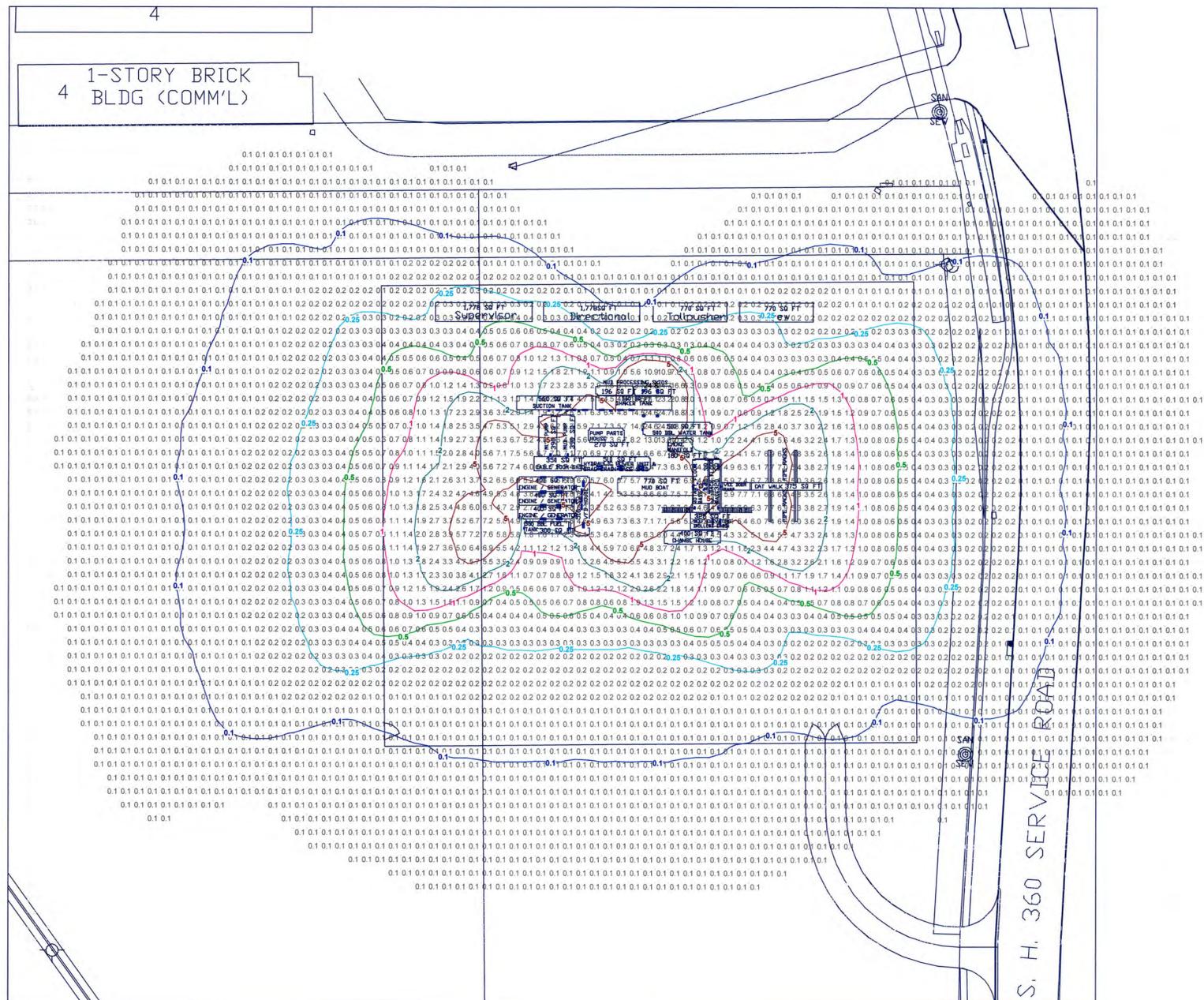
CHESAPEAKE OPERATING, INC.
 BC ASSOCIATES #4 - 7H, BC SOUTH #4 -5H,
 AND PSHL #1 - 3H
 3.10 ACRE PAD SITE
 CASE NUMBER - 10-03-CC



Southwest View
Scale 1" = 50'



LOCATION MAP
N.T.S.



Plan View
Scale 1" = 50'

LUMINAIRE SCHEDULE							
Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens LLF Watts
—	A	144	62A8004GC	C1D2 2-60W T12 HO		62A8004GC_2 478.IES	3500 0.75 102
●	C	8	CHP40HB	CODEMASTER 2 WCMR-4HB ALUMINUM HIGHBAY REFLECTOR	400W MH	CH40HB.ies	34000 0.72 460
■	D	34	GAM77H-VOLTAGE	AREAMASTER 250/400	VENTURE 400 WATT METAL HALIDE MH400/UEJ28 INITIAL LUMENS 36000	GAM77H.IES	36000 0.72 400

STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #4		0.5 fc	24.8 fc	0.0 fc	N/A	N/A

- NOTE:
- A. ISOCURVES REPRESENT ILLUMINATION LEVELS IN FOOTCANDLES.
 - B. THE POINT BY POINT CALCULATION IS PROVIDED ON 10'-0" x 10'-0" GRID.
 - C. CIVIL ENGINEERING INFORMATION AND DATA HAS BEEN REMOVED FROM THIS DRAWING FOR PHOTOMETRIC CLARIFICATION; REF. CIVIL DRAWINGS FOR FURTHER INFORMATION.



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TIM A. JENSEN, P.E. 74655 ON 06/01/10. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT. THE RECORD COPY OF THIS DRAWING IS ON FILE AT THE OFFICES OF HALFF, 1201 N. BOWSER ROAD, RICHARDSON, TEXAS 75081. (TBPE FIRM #F-312)

CHESAPEAKE OPERATING, INC.
BC ASSOCIATES 1H-3H, BC SOUTH 1H-3H
3.10 ACRE PAD SITE
CASE NUMBER - 10-02-CC

Chesapeake Operating, Inc.
Photometric Analysis Plan
Bear Creek Pad Project
Euless, Texas



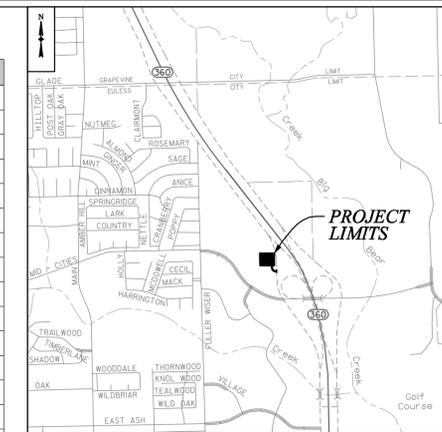
Designer
TJVR
Date
June 1 2010
Scale
As Noted
Drawing No.

TREE SURVEY DETAILS

Tag #	Species	Caliper (D.B.H.)	Canopy Radius	Trunks	To Be Removed
2	Hackberry	7.0	9		Yes
3	Eastern Red Cedar	8.0	8		Yes
4	American Elm	8.5	10		Yes
5	Hackberry	8.0	8		Yes
6	Honey Locust	6.0	9		Yes
7	Eastern Red Cedar	7.5	8		Yes
8	Eastern Red Cedar	6.0	10		Yes
9	Eastern Red Cedar	6.5	8		Yes
10	Mesquite	7.5	10		Yes
11	Hackberry	6.5	7		Yes
12	Hackberry	6.5	8		Yes
13	Hackberry	9.5	15		Yes
14	Hackberry	7.5	12		Yes
15	Mesquite	12.0	11		Yes
16	Mesquite	10.0	12		Yes
17	Mesquite	10.0	10	2x	Yes
18	Mesquite	15.0	15	4x	Yes
19	Mesquite	12.0	15		Yes
20	Mesquite	22.5	20	8x	Yes
21	Mesquite	20.0	15	2x	Yes
22	Hackberry	6.0	6		Yes
23	Mesquite	17.0	18		Yes
24	Hackberry	8.0	10		Yes
25	Hackberry	7.0	8		Yes
26	Mesquite	13.5	18		Yes
27	Mesquite	15.0	20		Yes
28	Mesquite	8.5	10		Yes
29	Mesquite	9.0	8		Yes
30	Mesquite	7.5	10	2x	Yes
31	Mesquite	25.5	25	4x	Yes
32	Mesquite	27.5	25	3x	Yes
33	Mesquite	18.5	25		Yes
34	Mesquite	18.0	20	5x	Yes
35	Mesquite	11.5	18		Yes
36	Mesquite	35.0	20	7x	Yes
37	Mesquite	18.5	20	9x	Yes
38	Mesquite	29.0	25	11x	Yes
39	Mesquite	11.0	15	2x	Yes
40	Hackberry	9.0	12	2x	Yes
41	Hackberry	7.0	12		Yes
42	Hackberry	6.5	10		Yes
43	Hercules Club	8.5	15	2x	Yes
44	Eastern Red Cedar	18.0	15		Yes
45	Mesquite	27.0	24	4x	Yes

Tag #	Species	Caliper (D.B.H.)	Canopy Radius	Trunks	To Be Removed
46	Mesquite	20.0	15	5x	Yes
47	Mesquite	11.5	15		Yes
48	Mesquite	20.0	16	3x	Yes
49	Eastern Red Cedar	7.0	10		Yes
50	Hackberry	8.0	10	3x	Yes
51	Mesquite	16.0	15	5x	Yes
52	Hercules Club	8.5	15	2x	Yes
53	Eastern Red Cedar	9.0	10		Yes
54	Eastern Red Cedar	28.0	15		Yes
55	Mesquite	39.0	40	2x	Yes
56	Mesquite	17.5	16	3x	No
57	Mesquite	22.0	18	4x	Yes
58	Mesquite	11.0	15		Yes
59	Mesquite	14.0	20		Yes
60	Cedar Elm	14.5	11		Yes
60	Gum Bumelia	8.5	10	4x	Yes
62	Mexican Plum	14.5	12	4x	Yes
63	Mesquite	37.0	35	4x	Yes
64	Hercules Club	7.5	16		Yes
65	Cedar Elm	6.5	12		Yes
66	Mexican Plum	9.5	15		Yes
67	American Elm	9.5	15		Yes
68	American Elm	13.5	20		Yes
69	Gum Bumelia	8.0	10	3x	Yes
70	Gum Bumelia	6.0	7		Yes
71	Mexican Plum	10.0	6	3x	Yes
72	Hercules Club	9.0	15	2x	Yes
73	Pecan	6.0	8		Yes
74	Gum Bumelia	17.0	15	3x	Yes
75	Hackberry	7.5	7		Yes
76	Hercules Club	6.0	10		Yes
77	Gum Bumelia	15.0	6	2x	Yes
78	Eastern Red Cedar	7.5	8		Yes
79	Post Oak	11.0	15		Yes
80	Eastern Red Cedar	6.0	6		Yes
81	American Elm	20.5	15	5x	Yes
82	Pecan	9.0	10	2x	Yes
83	Gum Bumelia	24.5	10	5x	Yes
84	Hackberry	9.5	8		Yes
85	Post Oak	8.5	10		Yes
86	Honey Locust	15.5	10	3x	Yes
87	Mexican Plum	8.0	10		Yes
88	Gum Bumelia	18.0	15	2x	Yes
89	Honey Locust	10.0	13		Yes

Tag #	Species	Caliper (D.B.H.)	Canopy Radius	Trunks	To Be Removed
90	Mesquite	16.0	12	6x	Yes
91	Hackberry	6.0	8	2x	Yes
92	Hackberry	6.0	10		Yes
93	Mesquite	12.0	10	2x	Yes
94	Mesquite	11.5	12		Yes
95	Cedar Elm	10.5	10	2x	Yes
96	Cedar Elm	12.0	12		Yes
97	Honey Locust	12.5	15		Yes
98	Mesquite	18.5	15	5x	Yes
99	Cedar Elm	13.5	12	3x	No
100	Cedar Elm	8.5	10	2x	No
101	Cedar Elm	10.5	12	4x	No
102	Cedar Elm	7.5	12	2x	No
103	Post Oak	16.0	20		No
104	Post Oak	12.5	18		Yes
105	Post Oak	6.0	10		Yes
106	Honey Locust	8.5	10		No
107	Mesquite	16.0	20	2x	No
108	Mesquite	38.0	35	5x	Yes
109	Mesquite	25.0	25	5x	Yes
110	Honey Locust	6.0	10		Yes
112	Mesquite	10.5	12	5x	Yes
113	Mesquite	27.5	25	6x	Yes
114	Gum Bumelia	12.5	12	4x	Yes
115	Honey Locust	14.5	20		No
116	Hackberry	8.0	10	2x	No
117	Mexican Plum	15.0	13	6x	No
118	Honey Locust	6.0	10		No
119	Eastern Red Cedar	8.0	12		No
120	Mesquite	7.5	8	2x	No
121	Eastern Red Cedar	9.0	13		No
122	Hercules Club	8.5	10		No
123	Honey Locust	6.0	9		No
124	Eastern Red Cedar	7.0	10		No
125	Hackberry	10.0	13	2x	No
126	Hackberry	13.0	15	2x	No
127	Eastern Red Cedar	9.0	12		No
128	Hackberry	12.0	15		No
129	Gum Bumelia	14.5	15	3x	No
130	Post Oak	8.0	10		No
131	Hackberry	6.0	8		No
132	Eastern Red Cedar	6.0	5		No
133	Eastern Red Cedar	6.0	6		No



LOCATION MAP
N.T.S.

NOTES:

- ONSITE PLANIMETRIC AND TOPOGRAPHIC MAPPING TAKEN FROM DATA PROVIDED BY AZB, DATED JANUARY 2010.
- TREE LOCATIONS WERE SURVEYED ON JANUARY 7, 2010 WITH TRIMBLE PRO-XRT GPS RECEIVER AND CORRECTED USING POST PROCESSING WITH THE REGIONAL REFERENCE POSITION.
- D.B.H. IS TRUNK DIAMETER AT BREAST HEIGHT.
- IN THE "TRUNKS" COLUMN, A NUMBER FOLLOWED BY "X" INDICATES THE NUMBER OF TRUNKS OF A MULTI-TRUNK TREE. THE DIAMETER IS THE TOTAL DIAMETER OF THE LARGEST TRUNK PLUS HALF THE DIAMETER OF EACH ADDITIONAL TRUNK.
- ALL TREES WITH A DIAMETER OF 6 INCHES OR GREATER (AT BREAST HEIGHT) WERE SURVEYED WITHIN THE IMMEDIATE VICINITY OF THE PROPOSED SITE.

CHESAPEAKE OPERATING, INC
TREE SURVEY DETAILS
BEAR CREEK PAD PROJECT
EULESS, TEXAS

HALFF
1201 NORTH BOWSER ROAD
RICHARDSON, TEXAS 75081-2275
TEL: (972) 396-0000
FAX: (972) 396-0000

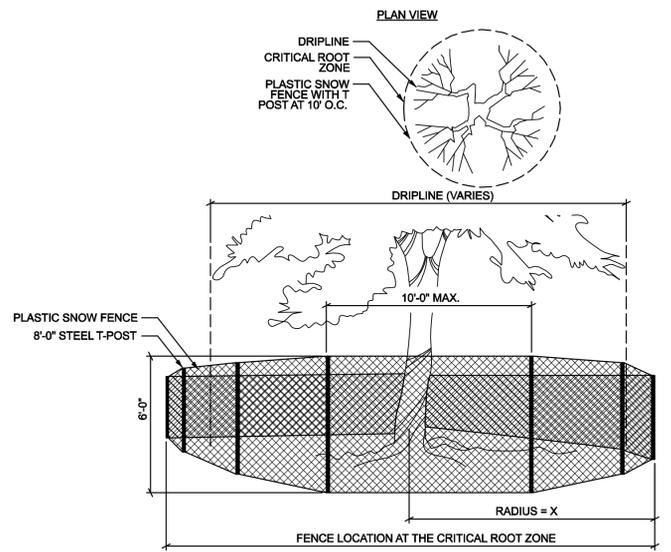
Revision No.	Date	Description
1	3/17/2010	ADD TITLE BLOCK
2	6/1/2010	REVISED TITLE BLOCK

These plans have been reviewed and approved by a Chesapeake Field Representative.
Signature: _____
Printed Name: _____
Date: _____



Project No.:	26724 / DR186
Issued:	05 / 24 / 2010
Drawn By:	CAB
Checked By:	JME
Scale:	AS NOTED
Sheet Title	TREE SURVEY DETAILS

T1.02
Sheet Number



X = CRITICAL ROOT ZONE
1 FOOT FOR EVERY CALIPER INCH OF TREE.
IF CRITICAL ROOT ZONE IS LESS THAN THE TREE DRIPLINE LOCATE FENCE AT DRIPLINE

STANDARD TREE PRESERVATION NOTES

- All trees and natural areas shown on plan to be preserved shall be protected during construction with temporary fencing and other measures as needed which may include retaining walls, pruning of limbs, roots, etc.
- Protective fences shall be erected according to City Standards for Tree Protection.
- Protective fences shall be installed prior to the start of any site preparation work (clearing, grubbing or grading), and shall be maintained throughout all phases of the construction project.
- Erosion and sedimentation control barriers shall be installed or maintained in a manner which does not result in soil build-up within tree drip lines.
- Protective fences shall surround the trees or group of trees, and will be located no closer than the outermost limit of branches (drip line). For natural areas, protective fences shall follow the Limit of Construction line, in order to prevent the following:
A. soil compaction in the root zone area resulting from vehicular traffic or storage of equipment or materials;
B. root zone disturbances due to grade changes (greater than 6 inches cut or fill), or trenching not reviewed and authorized by the Client, City Official or Client Representative
C. wounds to exposed roots, trunk or limbs by mechanical equipment
D. other activities detrimental to trees such as chemical storage, cement truck cleaning, and fires.
- Exceptions to installing fences at tree drip lines may be permitted in the following cases:
A. where there is to be an approved grade change, impermeable paving surface, tree well, or other such site development, erect the fence approximately 2 to 4 feet beyond the area disturbed;
B. where permeable paving is to be installed within a tree's drip line, erect the fence at the outer limits of the permeable paving area (prior to site grading so that this area is graded separately by hand prior to paving installation to minimized root damage);
C. where trees are close to proposed buildings, erect the fence to allow root pruning in the work space between the fence and the building, prior to disturbance. The fence can be erected at the point of root pruning.
D. where there are severe space constraints due to tract size, or other special requirements, contact an Arborist to discuss alternatives.
Special Note: For the protection of natural areas, no exceptions to installing fences at the Limit of Construction line will be permitted, and no silted or stock piling of material or dirt is allowed around trees.
- Where any of the above exceptions result in a fence being closer than 4 feet to a tree trunk, protect the trunk with strapped-on planking to a height of 8 ft. (or to the limits of lower branching) in addition to the reduced fencing provided.
- Trees approved for removal shall be removed in a manner which does not impact trees to be preserved.
- Any roots exposed by construction activity shall be pruned flush with the soil. Backfill root areas with good quality top soil as soon as possible. If exposed root areas are not backfilled within 2 days, cover them with organic material in a manner which reduces soil temperature and minimizes water loss due to evaporation.
- Any trenching required for the installation of landscape irrigation shall be placed as far from existing tree trunks as possible.
- No landscape topsoil dressing greater than 4 inches shall be permitted within the drip line of trees. No soil or mulch is permitted on the root flare of any tree.
- Limbing and pruning to provide clearance for structures, vehicular traffic and equipment shall take place before damage occurs (ripping of branches, etc.)
- All finished pruning shall be done according to recognized, approved standards of the industry (Reference the National Arborist Association Pruning Standards for Shade Trees).

01 TREE PROTECTION DETAIL
NOT TO SCALE

2
CHESAPEAKE OPERATING, INC.
BC ASSOCIATES 1H - 7H, BC SOUTH 1H - 5H,
& PSHL 1H - 3H
3.10 ACRE PAD SITE
CASE NUMBER - 10-03-CC

ah1759 HALFF I:\260006\26724\DR186_BC_Associates\CADD\Sheets\T1.02-TD-26724-DR186.dgn