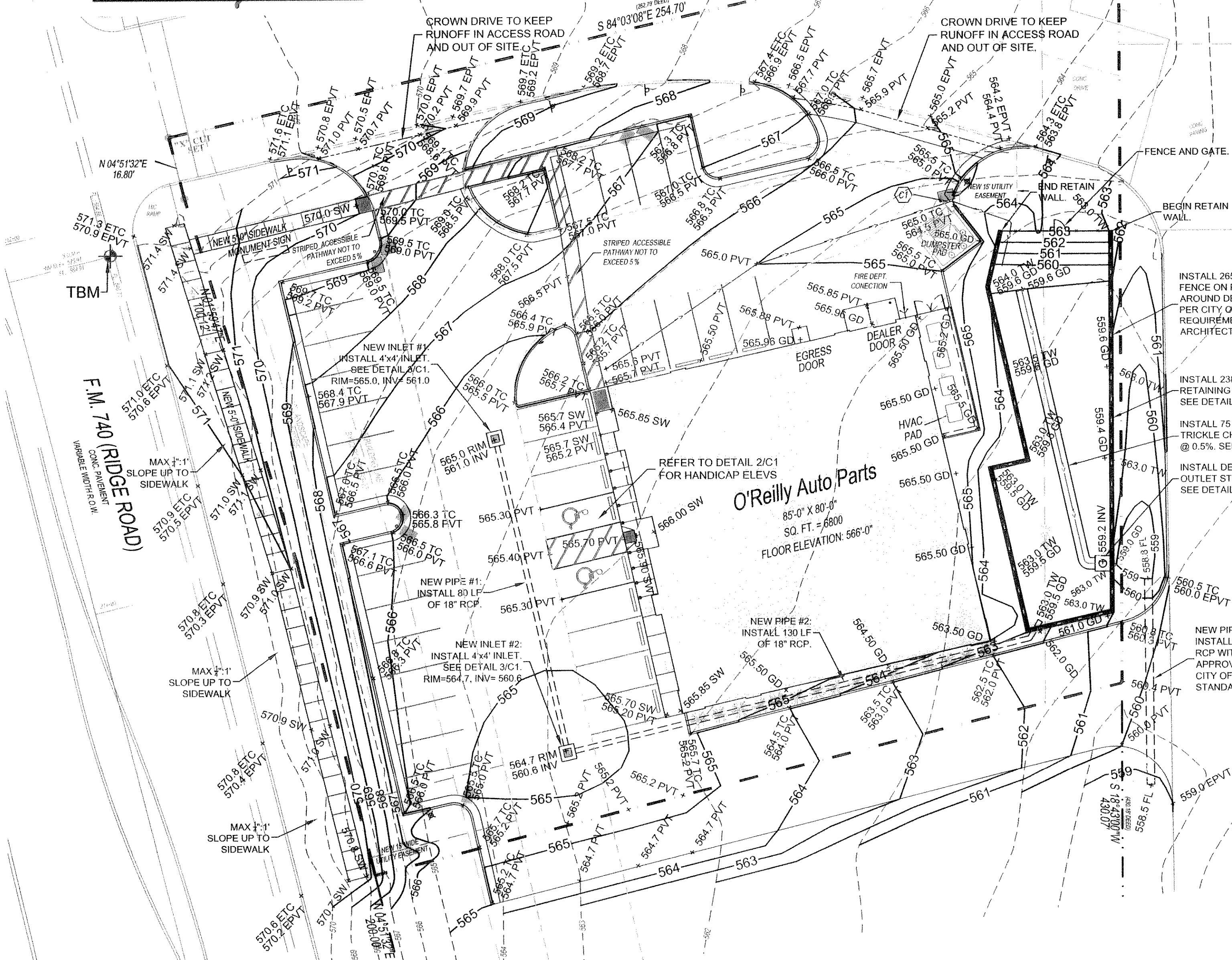


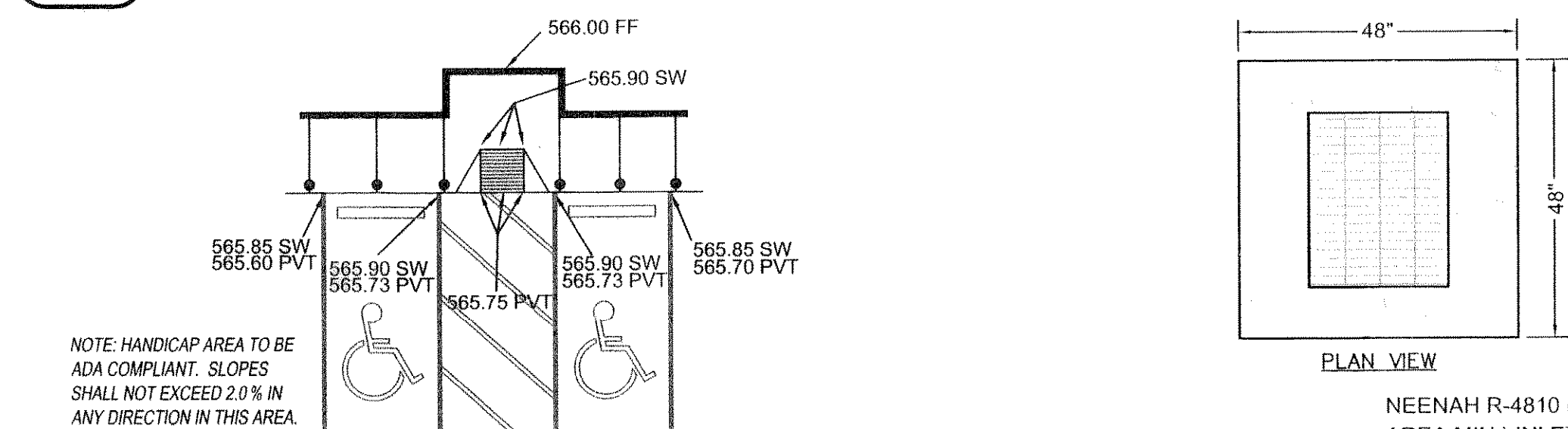
RECORD DRAWING

DATE: 02/02/2006



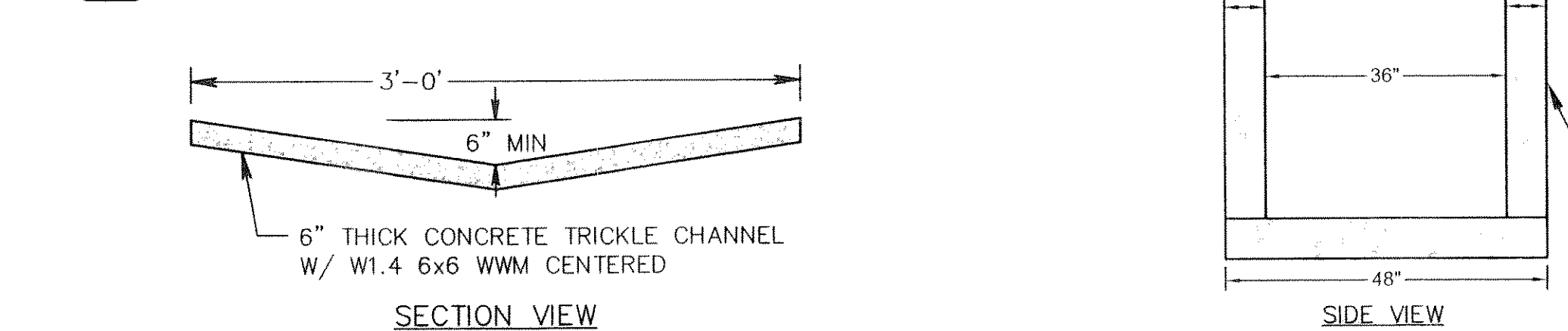
1 SITE GRADING PLAN

C1 SCALE: 1" = 20'



2 HANDICAP PARKING DETAIL

C1 SCALE: 1" = 10'



4 TRICKLE CHANNEL

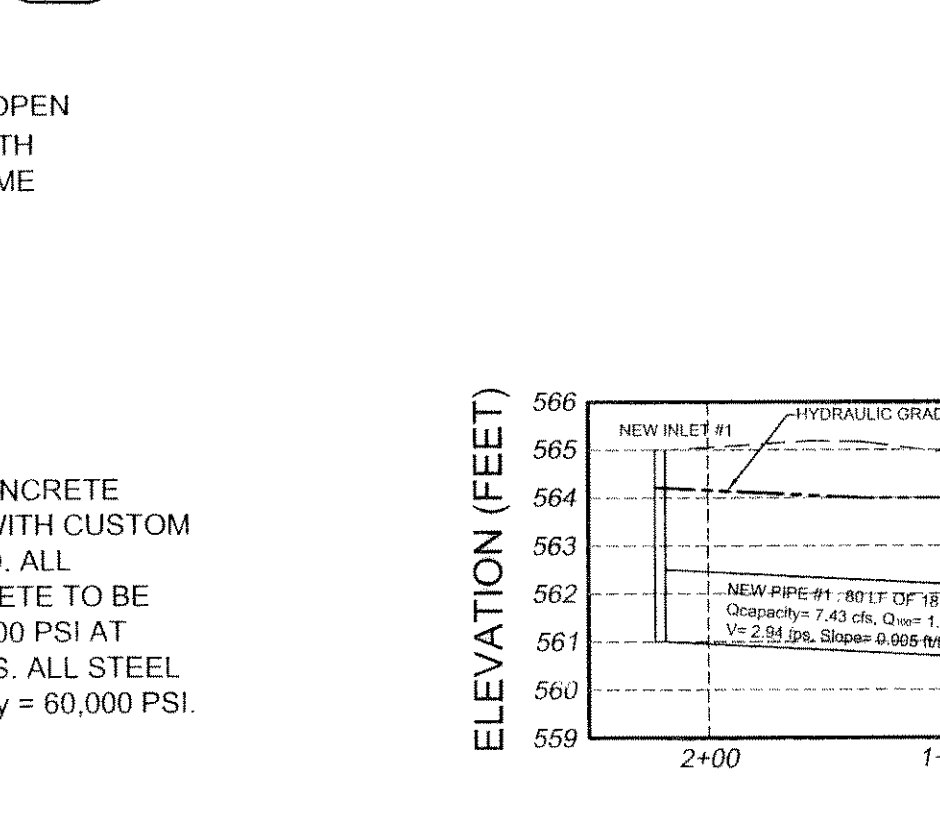
C1 SCALE: NOT TO SCALE

3 CONCRETE 4'x4' AREA INLET

C1 SCALE: NOT TO SCALE

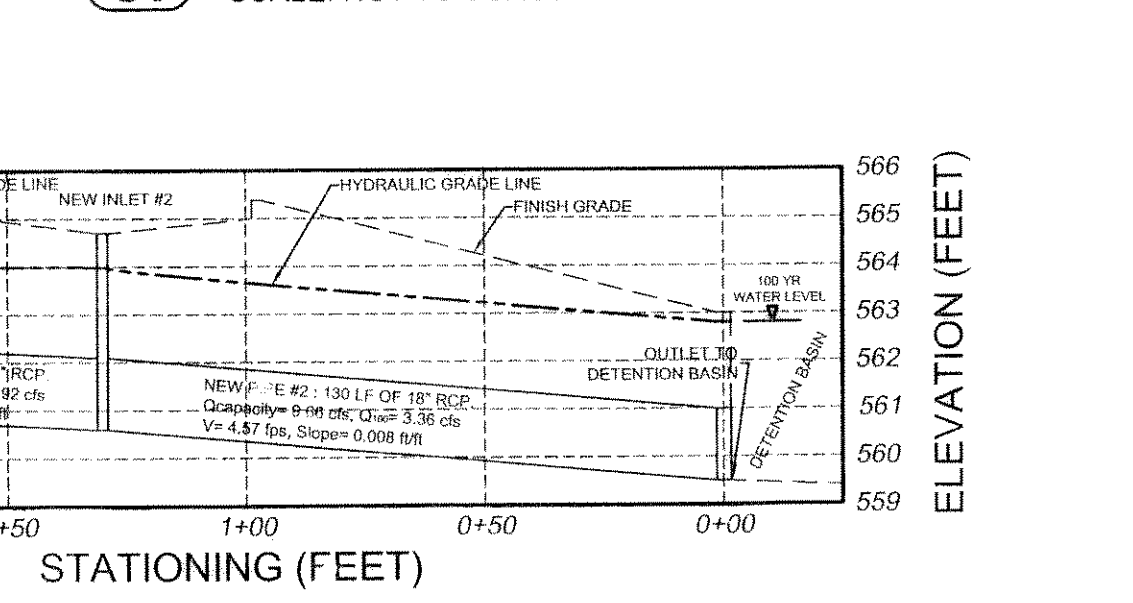
7 NEW PIPE #3 PROFILE

C1 HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'



5 DETENTION STRUCTURE

C1 SCALE: NOT TO SCALE



8 NEW PIPES #1 & #2 PROFILES

C1 HORIZONTAL SCALE: 1" = 40', VERTICAL SCALE: 1" = 4'



GENERAL NOTES:

- REFER TO PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.
- EXISTING SITE CONDITIONS BASED UPON SURVEY SUBMITTED BY OWNER. FIELD VERIFY EXISTING CONDITIONS BY DETAILED SITE INSPECTION PRIOR TO SUBMITTING BID AND BEGINNING WORK.
- FIELD VERIFY SANITARY SEWER CONNECTION INVERT PRIOR TO ESTABLISHING FINAL FINISH FLOOR ELEV.
- COORDINATE WORK WITH OTHER SITE RELATED DEVELOPMENT DRAWINGS.

KEY NOTES:

- 3" CURB CUT.

SITE EXCAVATION REQUIREMENTS:

- A GEOTECHNICAL ANALYSIS HAS BEEN PERFORMED ON THIS SITE. REFER TO PROJECT MANUAL FOLLOW GEOTECHNICAL ANALYSIS RECOMMENDATIONS FOR SITE EXCAVATION REQUIREMENTS.
- REFER TO STRUCTURAL DRAWINGS FOR FOUNDATION EXCAVATION REQUIREMENTS.
- ALL FILL TO BE COMPACTED WITH SHEEPS FOOT ROLLER TO 95% COMPACTION.

STORM WATER RUNOFF CALCULATIONS:

CALCULATION METHOD: MODIFIED RATIONAL; ROCKWALL, TX REQUIRED DETENTION DESIGN STORM= 100 YEAR

1. ON-SITE AREAS & RUNOFF COEFFICIENTS:

DEVELOPED PROJECT AREA = 0.956 ACRES
EXISTING DRAINAGE BASIN = 0.956 ACRES
EXISTING CONDITIONS
EXISTING CONDITIONS SET BY CITY
COMPOSITE RUNOFF COEFFICIENT, C = 0.35
POST-DEVELOPMENT
DEVELOPED CONDITIONS SET BY CITY
COMPOSITE RUNOFF COEFFICIENT, C = 0.90

2. TIME OF CONCENTRATION:

PRE-DEVELOPMENT
EXISTING CONDITIONS SET BY CITY
TIME OF CONCENTRATION, Tc = 20 mins
POST-DEVELOPMENT
DEVELOPED CONDITIONS SET BY CITY
TIME OF CONCENTRATION, Tc = 10 mins

3. RAINFALL INTENSITY (IN/HR):

GIVEN BY CITY OF ROCKWALL, TEXAS:
PERIOD DURATION (MINUTES)
DETAIN 10 MIN 15 MIN 20 MIN 30 MIN 40 MIN
DESIGN 9.80 9.00 8.30 6.90 5.80
STORM 50 MIN 60 MIN 70 MIN 80 MIN 90 MIN
100 YR 5.00 4.50 4.00 3.70 3.40

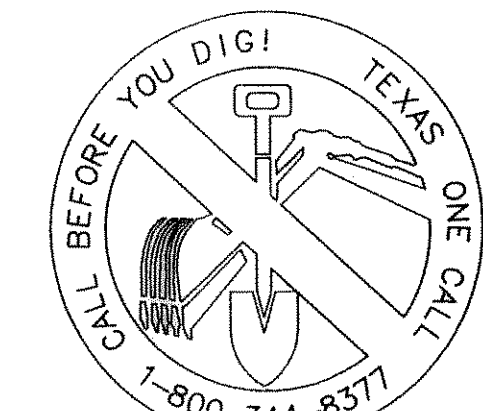
4. EXISTING RUNOFF (20 MIN TIME OF CONCENTRATION):

$Q_{100} = C \cdot I \cdot A = (0.35) \cdot (4.63 \text{ in/hr}) \cdot (0.956 \text{ ac}) = 1.55 \text{ cfs}$
 $Q_{20} = C \cdot I \cdot A = (0.35) \cdot (5.40 \text{ in/hr}) \cdot (0.956 \text{ ac}) = 1.80 \text{ cfs}$
 $Q_{10} = C \cdot I \cdot A = (0.35) \cdot (6.02 \text{ in/hr}) \cdot (0.956 \text{ ac}) = 2.01 \text{ cfs}$
 $Q_{100} = C \cdot I \cdot A = (0.35) \cdot (8.30 \text{ in/hr}) \cdot (0.956 \text{ ac}) = 2.77 \text{ cfs}$

5. DEVELOPED RUNOFF (10 MIN TIME OF CONCENTRATION):

DRAINAGE AREA FLOWING TO DETENTION BASIN= 0.855 ACRES
 $Q_{100} = C \cdot I \cdot A = (0.90) \cdot (9.80 \text{ in/hr}) \cdot (0.855 \text{ ac}) = 7.54 \text{ cfs}$
NEW SOUTH ACCESS ROAD NOT DETAINED= 0.101 ACRES
 $Q_{100} = C \cdot I \cdot A = (0.90) \cdot (9.80 \text{ in/hr}) \cdot (0.101 \text{ ac}) = 0.89 \text{ cfs}$

SPECIAL NOTE:
FIELD VERIFY SANITARY SEWER CONNECTION INVERT
PRIOR TO ESTABLISHING FINAL FINISH FLOOR ELEVATION.
REFER TO SITE UTILITIES PLAN.



6. DETENTION VOLUME REQUIRED CALCULATIONS:

DETENTION BASIN WILL RESTRICT TOTAL DEVELOPED RUNOFF TO LESS THAN TOTAL EXISTING FLOW. AREAS NOT DETAINED ARE ACCOUNTED FOR BY RESTRICTING DETENTION OUTFLOW TO LESS THAN TOTAL EXISTING OUTFLOW.
 $Q_{MAX 100} = Q_{EXISTING 100} + Q_{DEVELOPED 100}$
Inflow = Duration * Outflow * 60 seconds
Storage = Inflow - Outflow
100 YEAR STORM

Duration (min)	Intensity (in/hr)	Area (ac)	Inflow (cfs)	Outflow (cfs)	Inflow (ft ³ /s)	Outflow (ft ³ /s)	Storage (ft ³)
10	9.80	0.956	7.54	1.88	4525	1128	3396
15	9.00	0.956	6.90	1.88	5233	1410	4523
20	8.30	0.956	6.30	1.88	7684	1892	5972
30	6.90	0.956	5.31	1.88	9657	2257	7301
40	5.80	0.956	4.46	1.88	10711	2621	7989
50	5.00	0.956	3.85	1.88	11543	3396	8156
60	4.50	0.956	3.46	1.88	12465	3949	8517
70	4.00	0.956	3.08	1.88	12938	4513	8414
80	3.70	0.956	2.85	1.88	13696	5077	8589
90	3.40	0.956	2.62	1.88	14129	5642	8496

THE REQUIRED DETENTION FOR THE 100 YR STORM EVENT IS 8,589 cu.ft.

7. DETENTION VOLUME PROVIDED (RETAINED GRASS BASIN):

ELEVATION VOL STORAGE VOL STORAGE STORM ELEVATION
(cu.ft.) (cu.ft.) (year) (feet)
559.20 0.0000 0.0000 562.75
560.00 1242 0.0285
561.00 3727 0.0855
562.00 6298 0.1446
563.00 8954 0.2056
100 562.75

THE REQUIRED VOLUME IS MET AT THE INDICATED ELEVATION.

8. DETENTION OUTLET (SEE DETAIL 5/C1):

DETENTION OUTLET IS A 4'x4' BOX WITH A 6" DIAMETER LOW FLOW ORIFICE. LARGER STORM EVENTS FLOW OVER OPEN BOX WEIR.

WEIR WALL OVERFLOW DISCHARGE CAPACITY= 7.09 cfs

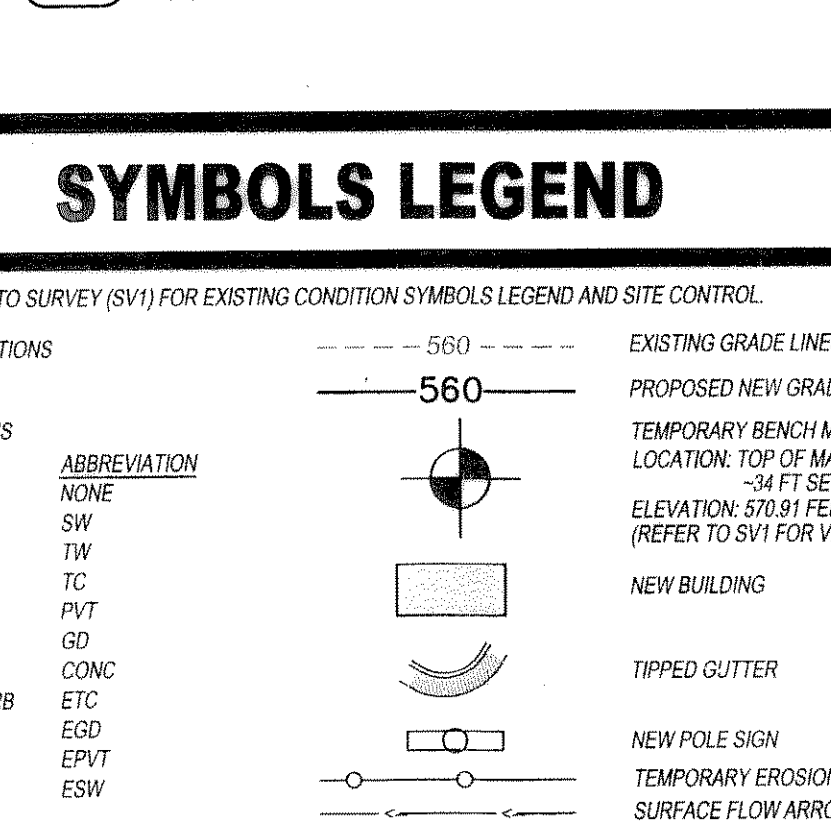
DESIGN TOTAL EXIST DEVELOPED RUNOFF RESTRICTED DISCHARGE
(YEAR) (CFS) (CFS) (CFS @ ELEV)
STORM 10 1.55 N/A 1.21 cfs @ 561.1'
100 25 1.80 N/A 1.32 cfs @ 561.4'
50 50 2.01 N/A 1.35 cfs @ 561.5'
100 2.77 0.89 1.82 cfs @ 562.75'

TOTAL DEVELOPED 100 YR DISCHARGE= 0.89 cfs + 1.82 cfs = 2.71 cfs

EXISTING 100 YR DISCHARGE ALLOWED = 2.77 cfs

6 RETAINING WALL

C1 SCALE: NOT TO SCALE



SYMBOLS LEGEND



CASCO
10877 WATSON ROAD
ST. LOUIS, MO 63127
PROJECT MANAGERS

ISSUED FOR PERMIT:
ISSUED FOR BID:
REVISIONS:
NO. 9 DATE 02/18/05

FINAL APPROVED
ENGINEERING PLANS

MO ANDERSON/A/E
ENGINEERING, INC.
ENGINEERS - SURVEYORS - LABORATORIES - DRILLING
2045 W. WOODLAND ST. - SPRINGFIELD, MISSOURI 65807 - PHONE (417) 886-2741
PROJ # 18158
BY: PJE
DATE: 02/19/05
REVISION: FIRE LANE
DRAWING # WB-106-544

PROJECT:
NEW O'REILLY AUTO PARTS STORE
RIDGE ROAD
ROCKWALL, TEXAS

233 SOUTH PATTERSON
SPRINGFIELD, MO 65802
PHONE: (417) 862-3333

Professional of record practicing as
NEIL S. BRADY #88145 EXP: 03/31/05
PROFESSIONAL OF RECORD
PHONE: 417-866-2741
JOB NO.: 904522
DRAWN: PJE
CHECKED: NSB
DATE: 03/01/04
SCALE: 1" = 20'
SHEET:

C1