

US EPA ARCHIVE DOCUMENT

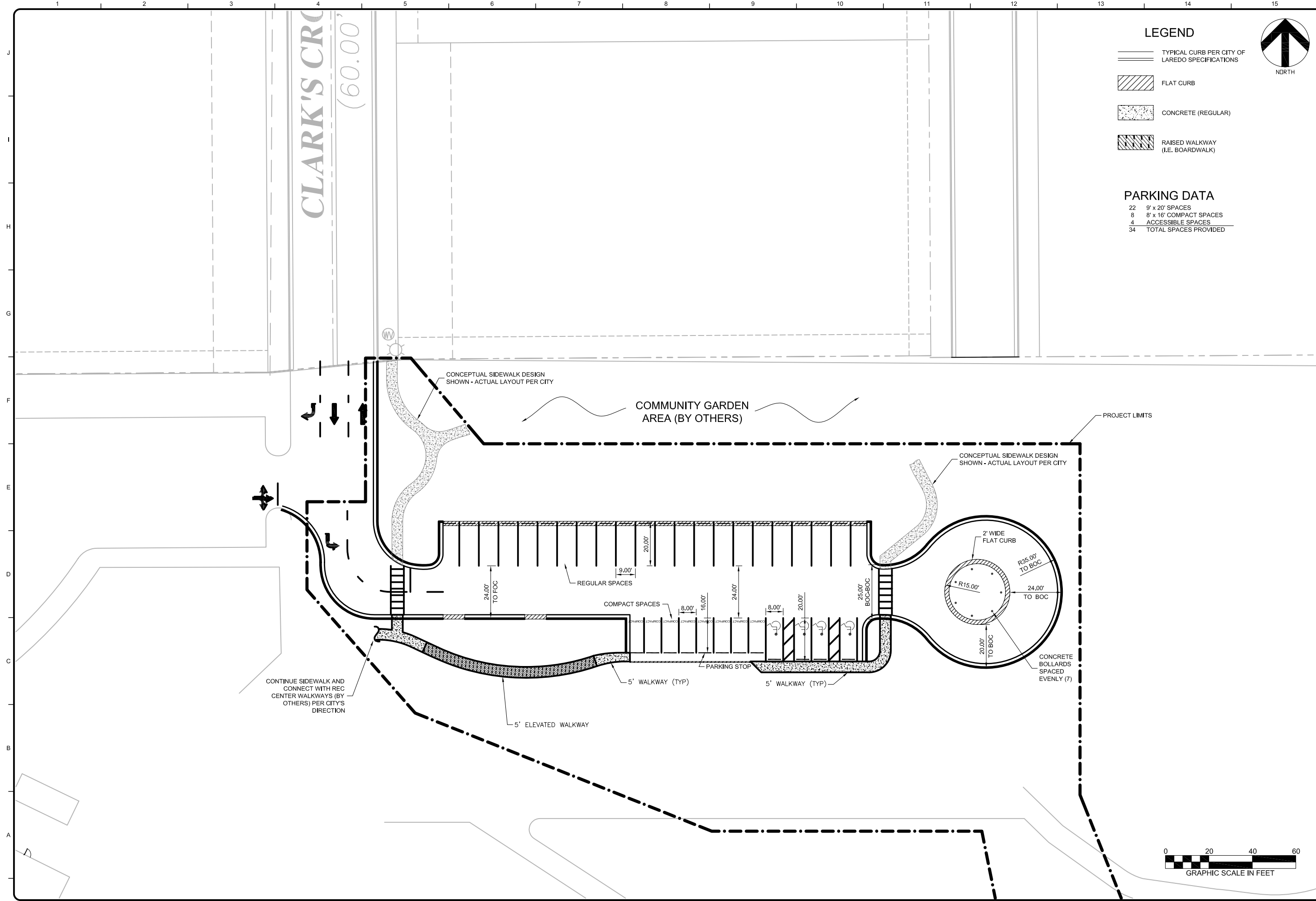
**TECHNICAL MEMORANDUM
BROWNFIELDS SUSTAINABILITY PILOT
CONCEPTUAL DESIGN DRAWINGS -
HAYNES RECREATION CENTER
LAREDO, TX**

Prepared for:
U.S. Environmental Protection Agency
Office of Solid Waste and Emergency Response
Office of Brownfields and Land Revitalization
Washington, DC 20460

Prepared by:
Tetra Tech EM Inc.
1881 Campus Commons Dr.
Ste. 200
Reston, VA 20191

SRA International, Inc. (Contract No. EP-W-07-023)
3434 Washington Boulevard
Arlington, VA 22201

Wednesday, May 06, 2009 2:44:54 PM DRAWING: W:\CADD-Maps\Laredo-P-5-nobypass-gardenmoved.DWG LAYOUT: SITEPLAN-1 USER NAME: SNOOK, DAVID



LEGEND

- TYPICAL CURB PER CITY OF LAREDO SPECIFICATIONS
- FLAT CURB
- CONCRETE (REGULAR)
- RAISED WALKWAY (I.E. BOARDWALK)

PARKING DATA

22	9' x 20' SPACES
8	8' x 16' COMPACT SPACES
4	ACCESSIBLE SPACES
34	TOTAL SPACES PROVIDED

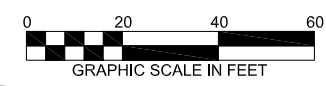
TETRA TECH
 www.tetra.tech.com
 1881 CAMPUS COMMONS DRIVE, SUITE 200
 RESTON, VA 20191
 PHONE: 703.391.5875 FAX: 703.391.5876

MARK	DATE	DESCRIPTION	BY
	4/15/09	DRAFT SUBMITTAL FOR CLIENT REVIEW	DGS
	5/4/09	DRAFT FINAL SUBMITTAL FOR TR	DGS
	5/4/09	MINOR REVISIONS	DGS

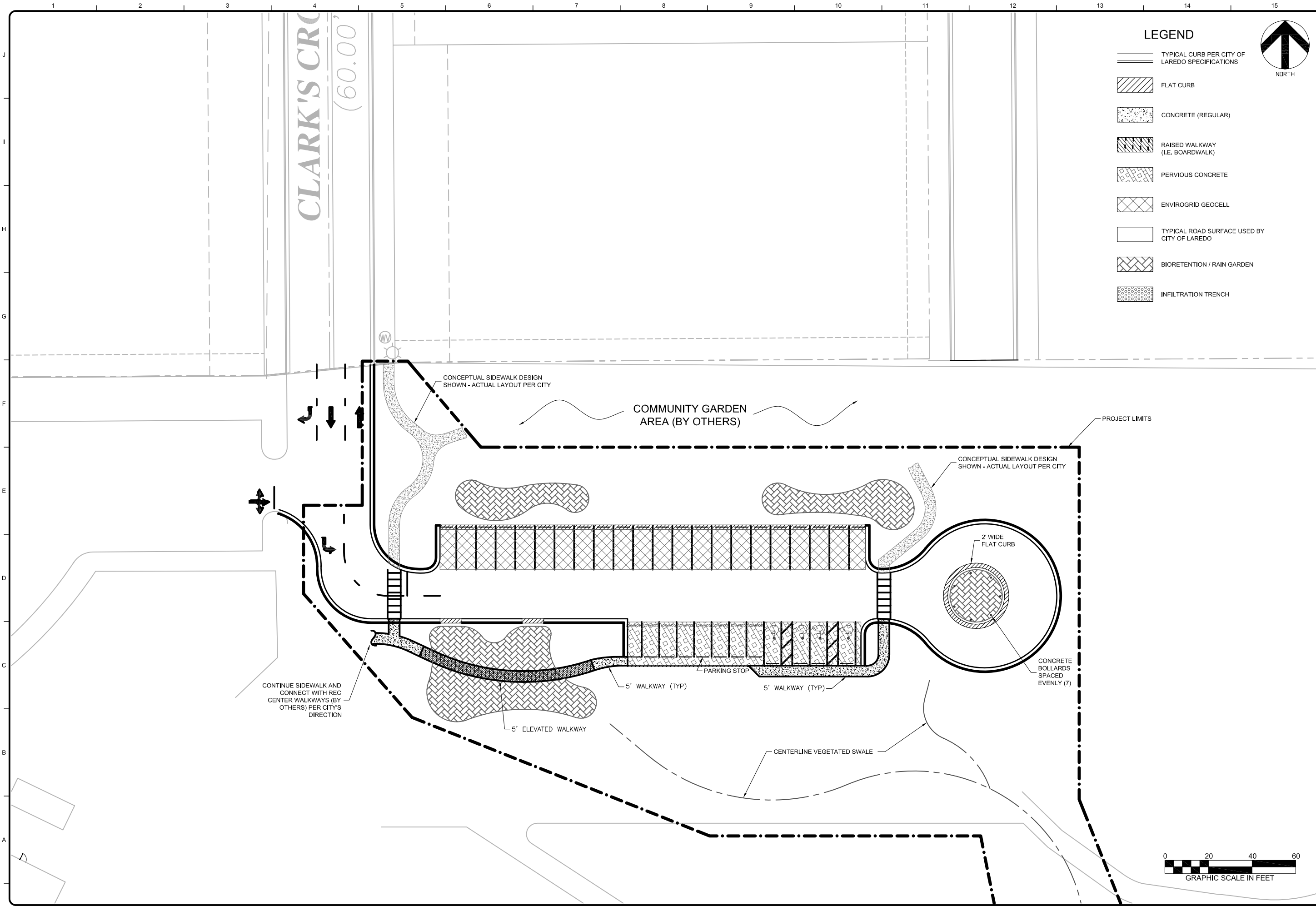
Client: SRA BROWNFIELDS WORK ASSIGNMENT 0018
 Proj. Loc.: LAREDO, TEXAS
 CITY OF LAREDO, TEXAS
 LID PARKING LOT DESIGN PILOT PROJECT

Project No.: 103DG1392-1806.02
 Designed By: DGS
 Drawn By: DGS
 Checked By:

SIT-1
 Sheet 1 of 9
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Wednesday, May 06, 2009 2:45:00 PM DRAWING: W:\CADD-Maps\Laredo-P-5-nobypass-gardenmoved.DWG LAYOUT: SITEPLAN-2 USER NAME: SNOOK, DAVID



LEGEND

- TYPICAL CURB PER CITY OF LAREDO SPECIFICATIONS
- FLAT CURB
- CONCRETE (REGULAR)
- RAISED WALKWAY (I.E. BOARDWALK)
- PERVIOUS CONCRETE
- ENVIROGRID GEOCELL
- TYPICAL ROAD SURFACE USED BY CITY OF LAREDO
- BIORETENTION / RAIN GARDEN
- INFILTRATION TRENCH



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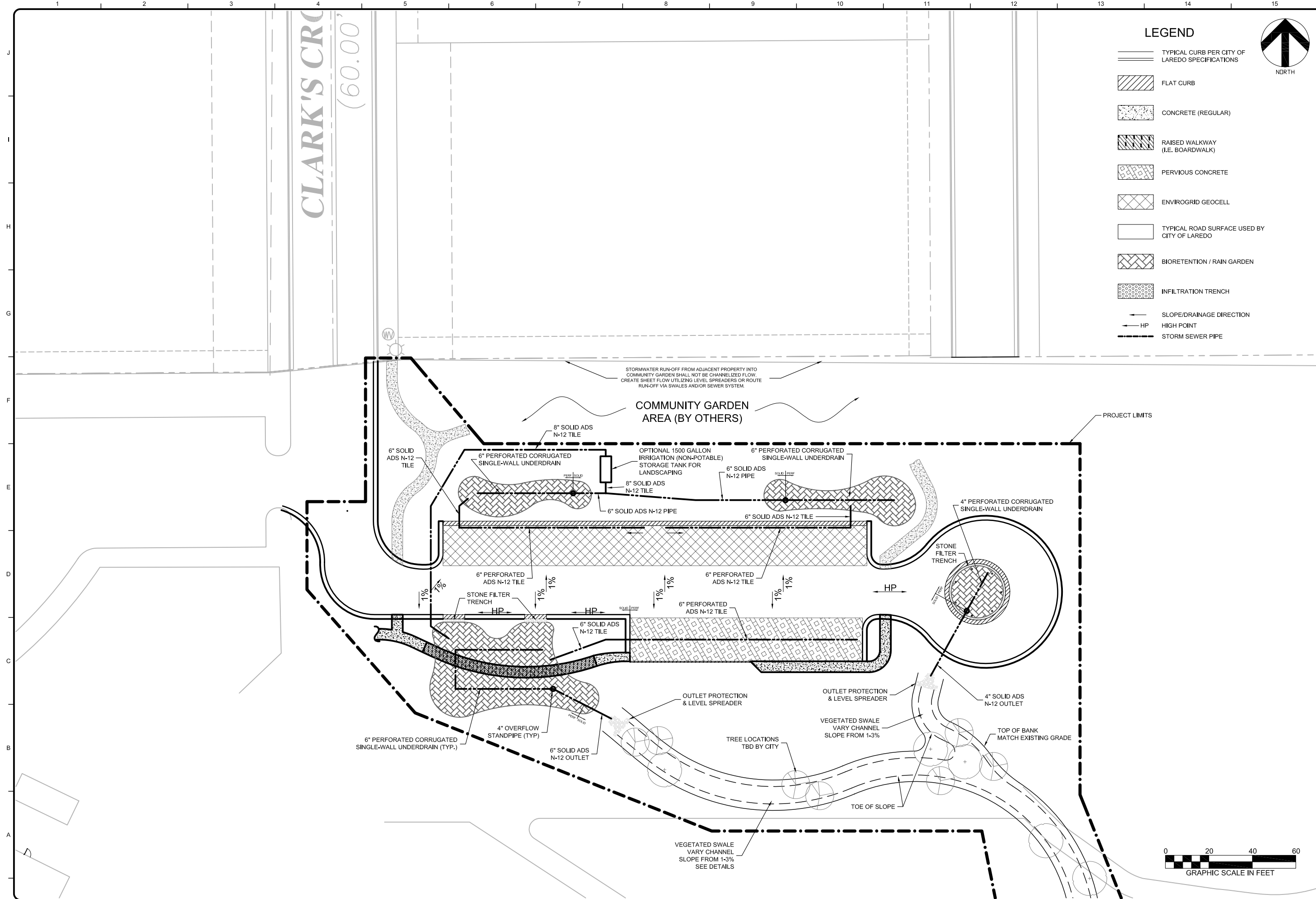
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	5/4/09	DRAFT FINAL SUBMITTAL FOR TR	DGS
	5/4/09	MINOR REVISIONS	DGS

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 CITY OF LAREDO, TEXAS
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Project No.: 103DG1392-1806.02
 Designed By: DGS
 Drawn By: DGS
 Checked By:

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LEGEND

- TYPICAL CURB PER CITY OF LAREDO SPECIFICATIONS
- FLAT CURB
- CONCRETE (REGULAR)
- RAISED WALKWAY (I.E. BOARDWALK)
- PERVIOUS CONCRETE
- ENVIROGRID GEOCELL
- TYPICAL ROAD SURFACE USED BY CITY OF LAREDO
- BIORETENTION / RAIN GARDEN
- INFILTRATION TRENCH
- SLOPE/DRAINAGE DIRECTION
- HP HIGH POINT
- STORM SEWER PIPE

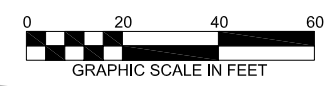
NORTH

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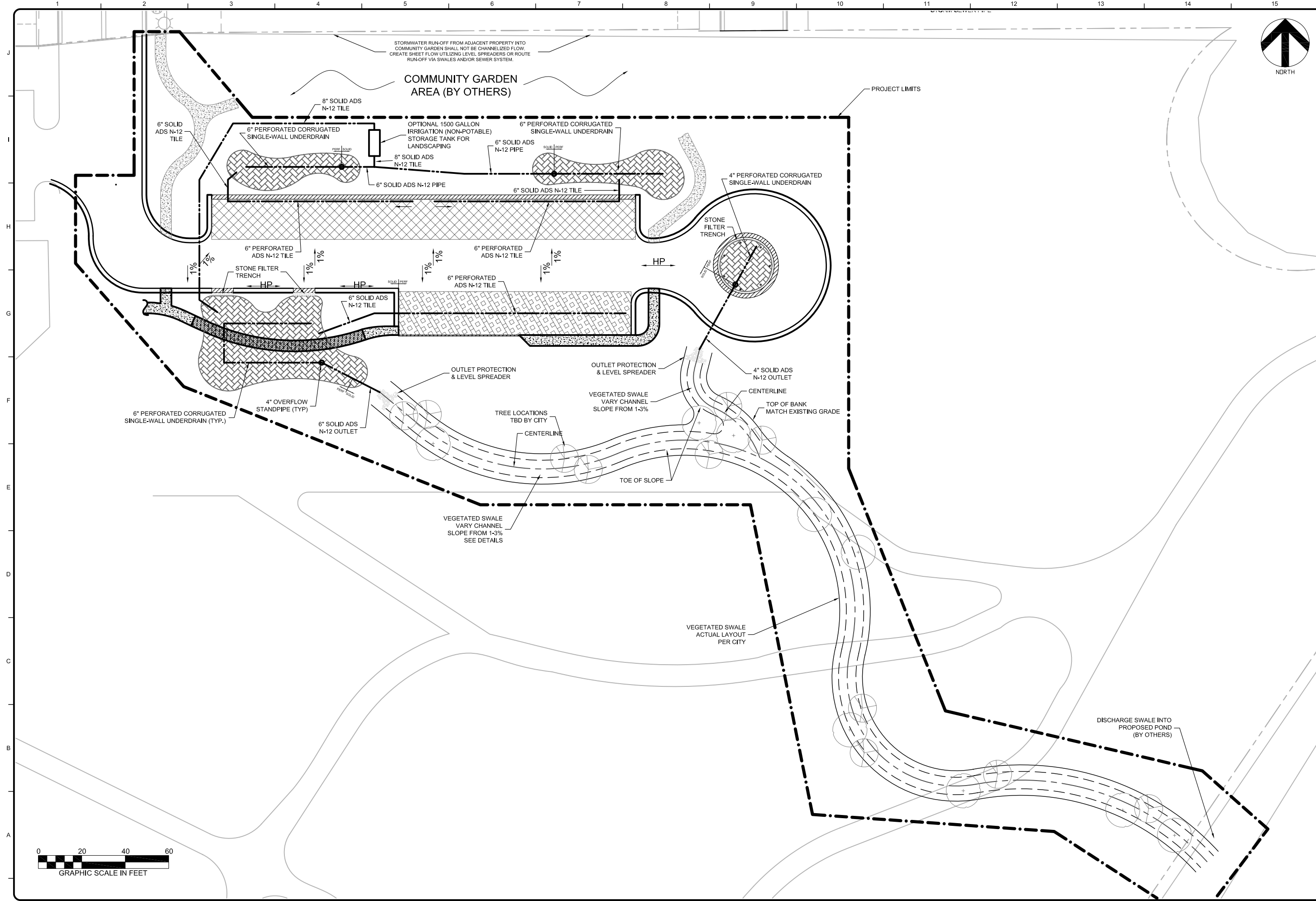
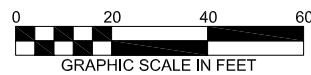
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	5/4/09	MINOR REVISIONS	DGS

Client: SRA BROWNFIELDS WORK ASSIGNMENT 0018
Proj. Loc.: LAREDO, TEXAS
CITY OF LAREDO, TEXAS
LID PARKING LOT DESIGN PILOT PROJECT
LID/STORMWATER PLAN

Project No.: 103DG1392-1806.02
Designed By: DGS
Drawn By: DGS
Checked By:



Wednesday, May 06, 2009 2:45:22 PM DRAWING: W:\CADD-Maps\Laredo-P-5-mobypass-gardenmoved.DWG LAYOUT: SITEPLAN-4 USER NAME: SNOOK, DAVID



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	5/4/09	MINOR REVISIONS	DGS

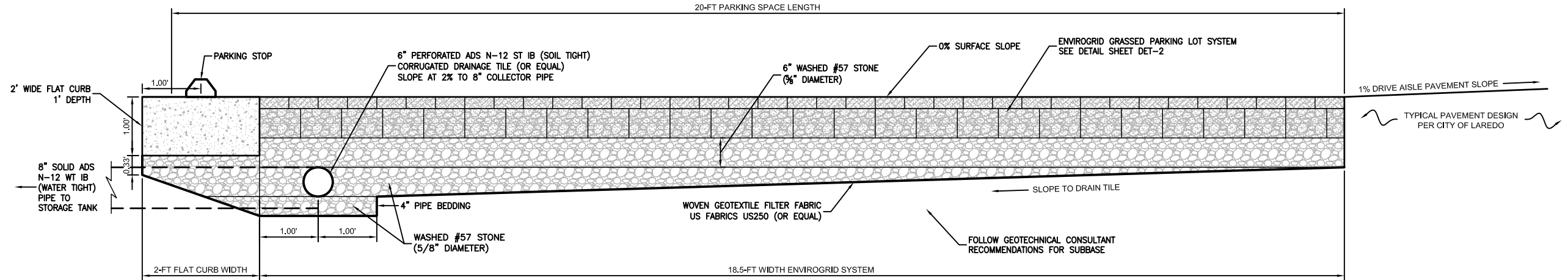
Client: SRA BROWNFIELD'S WORK ASSIGNMENT 0018
Proj. Loc.: LAREDO, TEXAS

CITY OF LAREDO, TEXAS
LID PARKING LOT DESIGN PILOT PROJECT

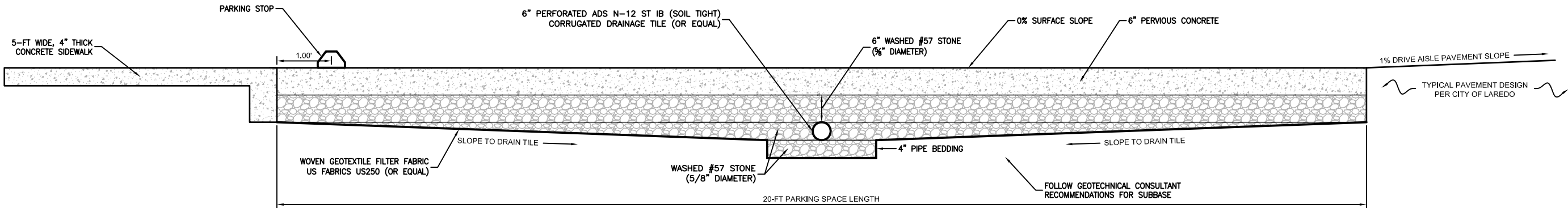
LID/STORMWATER PLAN WITH SWALE TO FUTURE POND

Project No.: 103DG1392-1806.02
Designed By: DGS
Drawn By: DGS
Checked By:

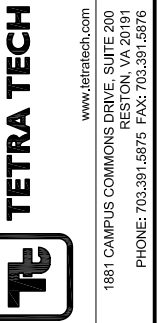
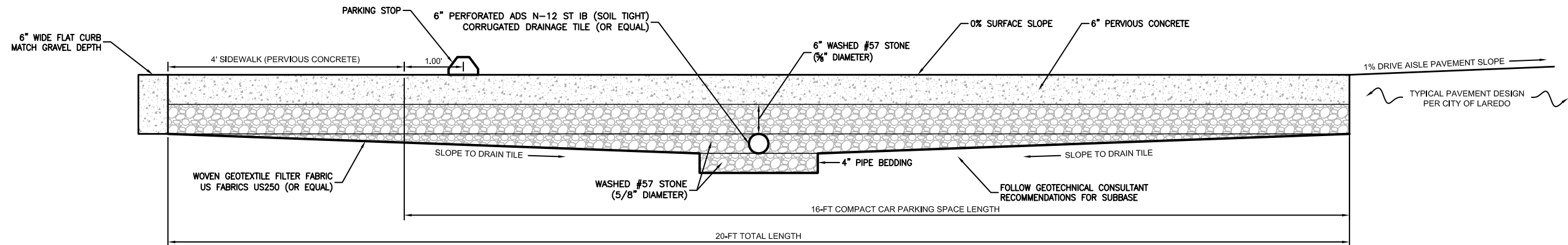
GRASSED PARKING SPACE WITH PERFORATED DRAIN PIPE



20-FT PERVIOUS CONCRETE ACCESSIBLE PARKING SPACE WITH PERFORATED DRAIN PIPE



16-FT PERVIOUS CONCRETE COMPACT PARKING SPACE WITH PERFORATED DRAIN PIPE



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	5/4/09	MINOR REVISIONS	DGS

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 Proj. Loc.: LAREDO, TEXAS
 CITY OF LAREDO, TEXAS
 LID PARKING LOT DESIGN PILOT PROJECT

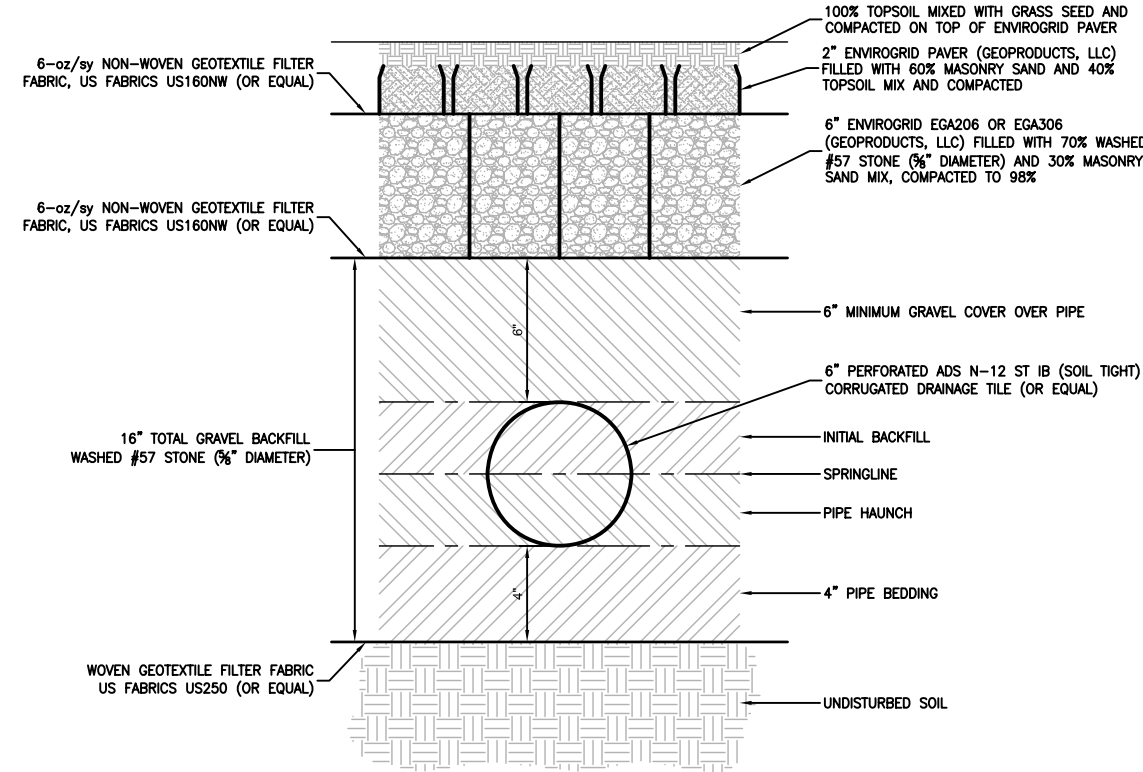
Project No.: 103DG1392-1806.02
 Designed By: DGS
 Drawn By: DGS
 Checked By:

DET-1
 Sheet 5 of 9

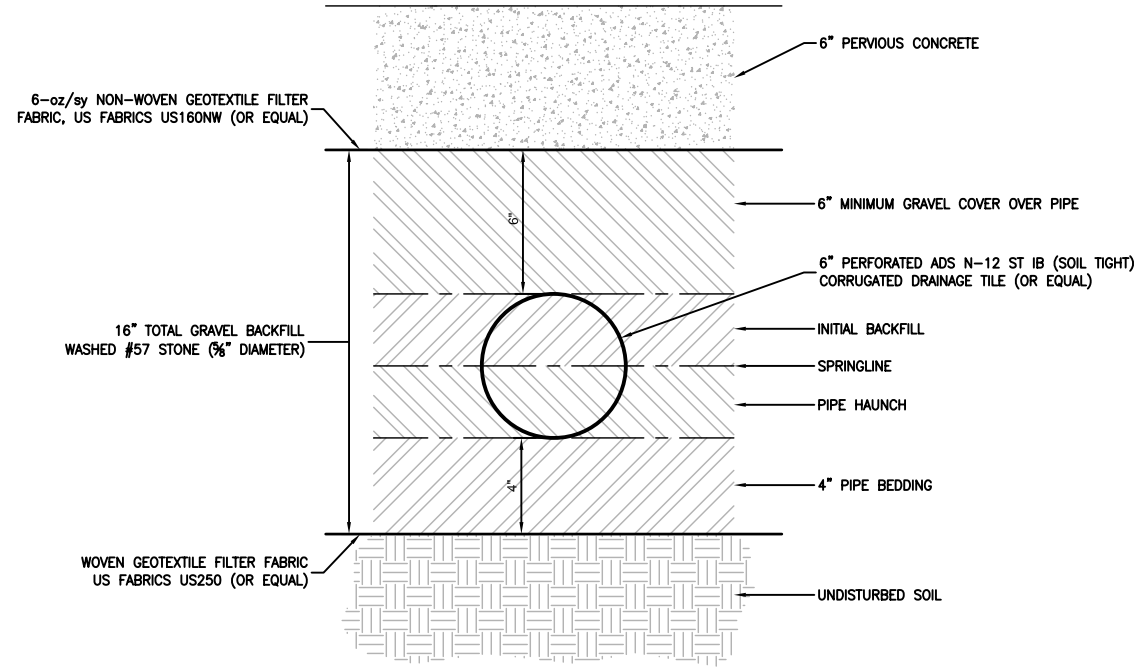
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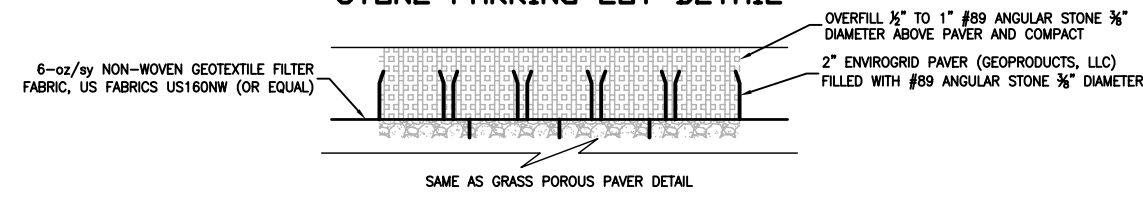
POROUS PAVERS GRASSED PARKING LOT DETAIL



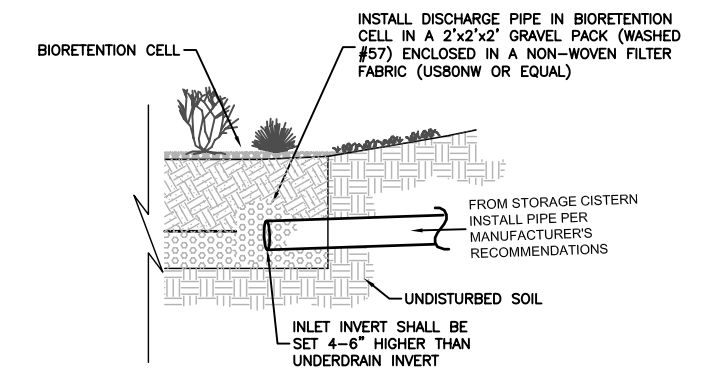
PERVIOUS CONCRETE WITH DETAIL 6" PERFORATED DRAIN PIPE



POROUS PAVERS STONE PARKING LOT DETAIL



BIORETENTION PIPE INLET DETAIL



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	5/14/09	MINOR REVISIONS	DGS

Client: SRA BROWNFIELDS WORK ASSIGNMENT 0018
Proj. Loc.: LAREDO, TEXAS
City: LAREDO, TEXAS
Project: LID PARKING LOT DESIGN PILOT PROJECT

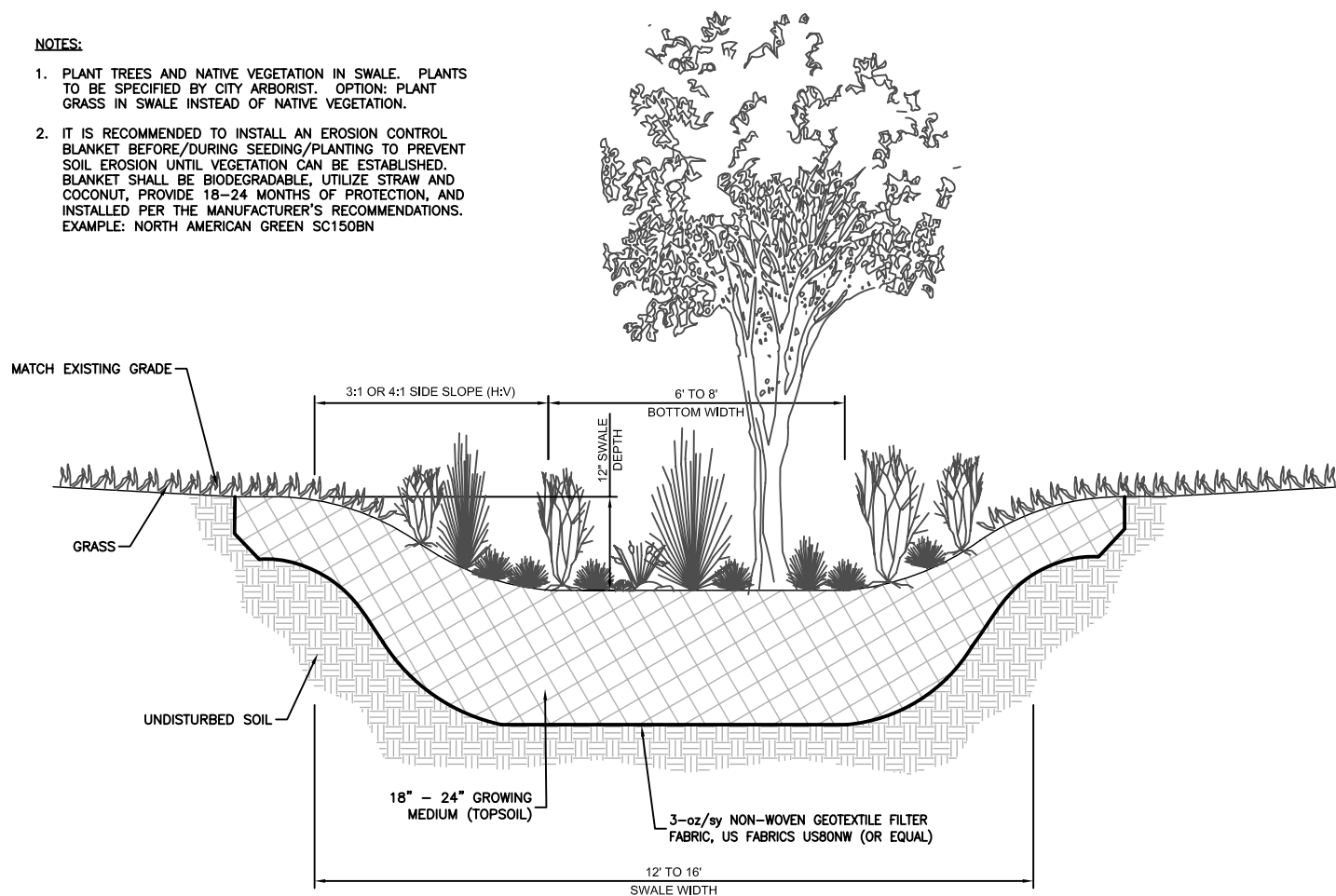
Project No.: 103DG1392-1806.02
Designed By: DGS
Drawn By: DGS
Checked By:

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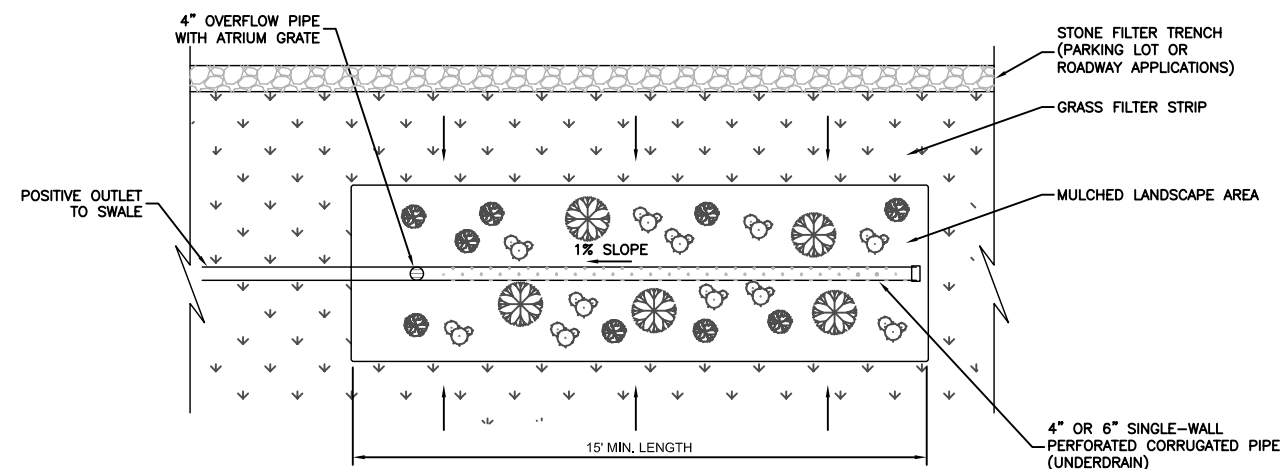
TYPICAL SWALE DETAIL

NOTES:

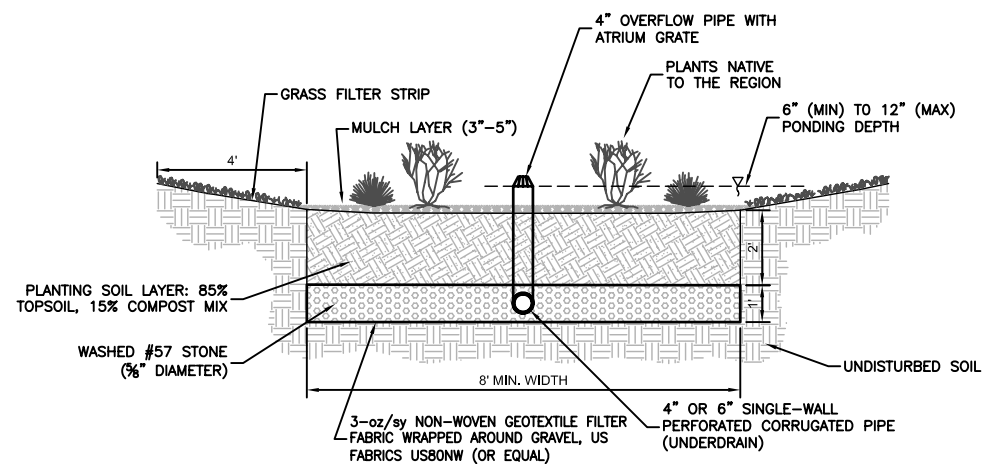
1. PLANT TREES AND NATIVE VEGETATION IN SWALE. PLANTS TO BE SPECIFIED BY CITY ARBORIST. OPTION: PLANT GRASS IN SWALE INSTEAD OF NATIVE VEGETATION.
2. IT IS RECOMMENDED TO INSTALL AN EROSION CONTROL BLANKET BEFORE/DURING SEEDING/PLANTING TO PREVENT SOIL EROSION UNTIL VEGETATION CAN BE ESTABLISHED. BLANKET SHALL BE BIODEGRADABLE, UTILIZE STRAW AND COCONUT, PROVIDE 18-24 MONTHS OF PROTECTION, AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. EXAMPLE: NORTH AMERICAN GREEN SC150BN



TYPICAL BIORETENTION CELL DETAIL



PLAN VIEW



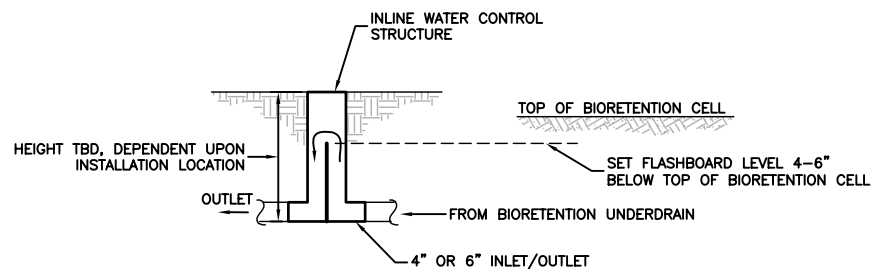
CROSS SECTION

WATER LEVEL CONTROL STRUCTURE FOR BIORETENTION CELL

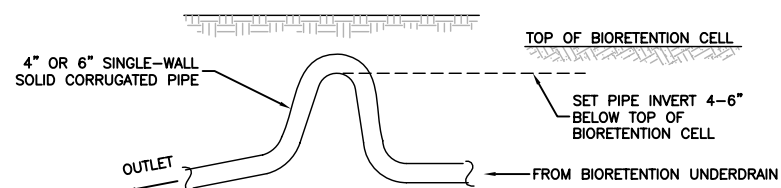
NOTES:

1. TWO OPTIONS SHOWN BELOW
2. PLACE WATER CONTROL STRUCTURE OUTSIDE OF BIORETENTION CELL

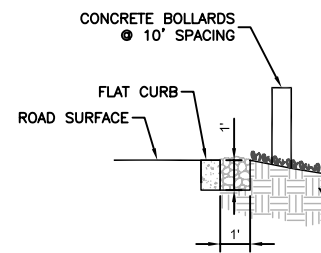
AGRI DRAIN (OR EQUAL) INLINE WATER CONTROL STRUCTURE (WCS)



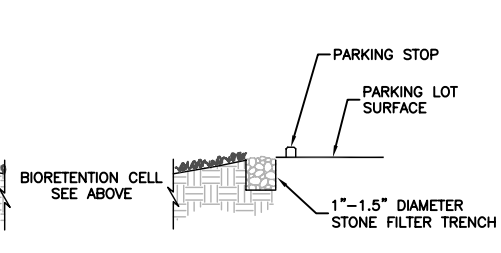
WATER CONTROL STRUCTURE CREATED BY CONFIGURING CORRUGATED PIPE



ROADWAY/DRIVE AISLE APPLICATION



PARKING LOT APPLICATION



ROADWAY & PARKING LOT APPLICATIONS

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	5/4/09	MINOR REVISIONS	DGS

Client: SRA BROWNFIELD'S WORK ASSIGNMENT 0018
Proj. Loc.: LAREDO, TEXAS
CITY OF LAREDO, TEXAS
LID PARKING LOT DESIGN PILOT PROJECT

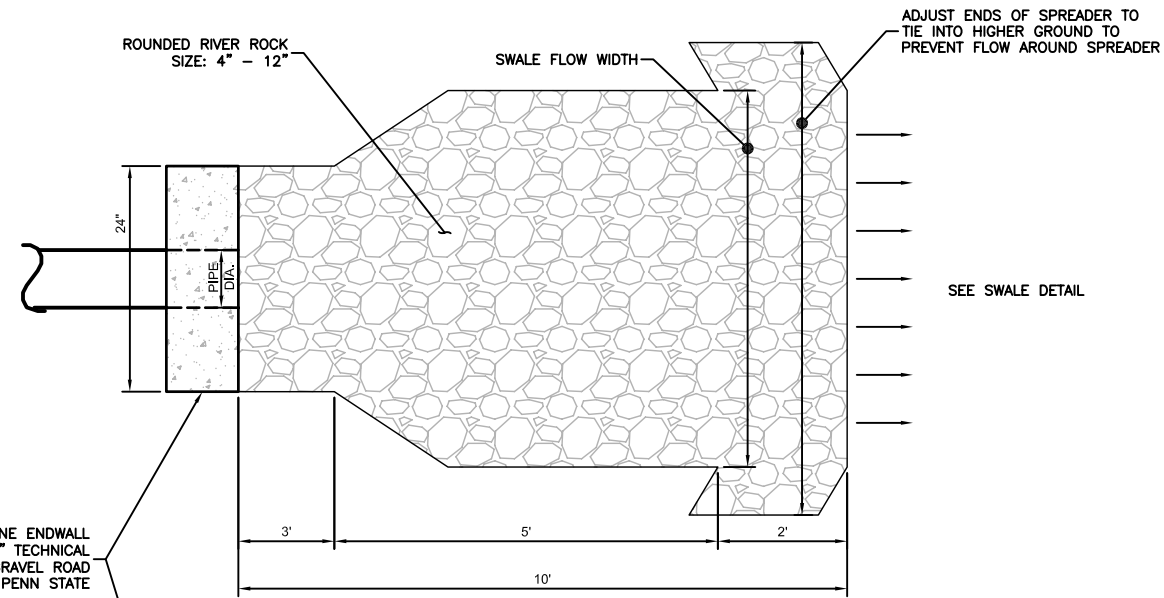
Project No.: 103DG1392-1806.02
Designed By: DGS
Drawn By: DGS
Checked By:

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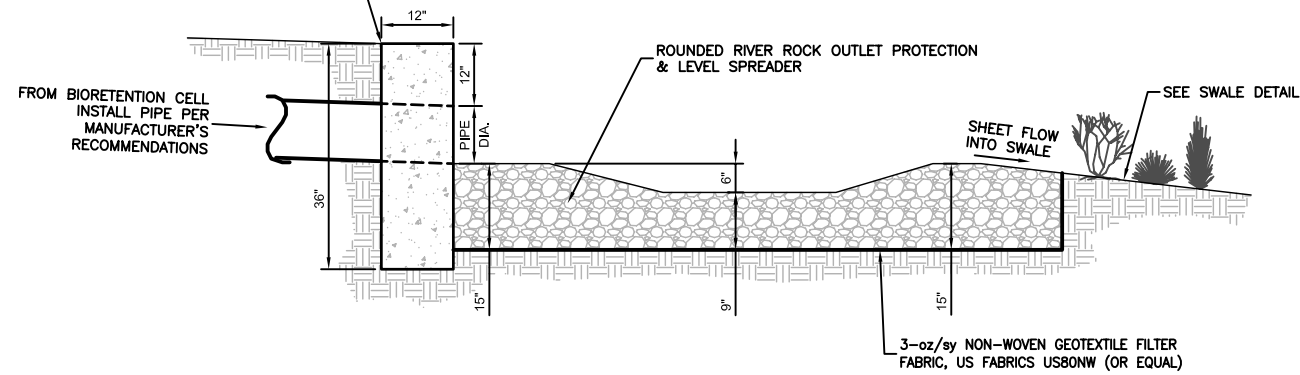
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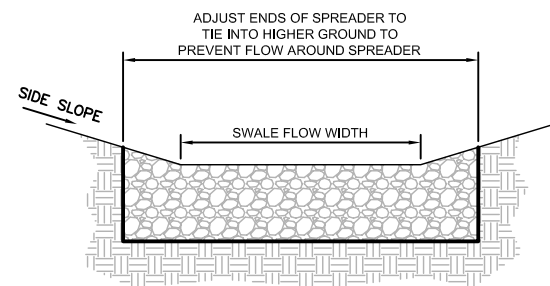
PIPE OUTLET WITH LEVEL SPREADER DETAIL



PLAN VIEW



SECTION VIEW



END VIEW

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 Proj. Loc.: LAREDO, TEXAS
 CITY OF LAREDO, TEXAS
 LID PARKING LOT DESIGN PILOT PROJECT

Project No.: 103DG1392-1806.02
 Designed By: DGS
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NOTES

SURVEY:

1. EXISTING SURVEY IS BASED ON CLIENT-SUPPLIED GIS FILES.
2. EXISTING SITE FEATURES AND UNDERGROUND UTILITIES SHALL BE VERIFIED BEFORE CONSTRUCTION COMMENCES.

GEOTECHNICAL:

1. REFER TO "GEOTECHNICAL ENGINEERING STUDY, EAST SIDE RECREATIONAL FACILITY, CLARK'S CROSSING DRIVE, LAREDO TEXAS, DECEMBER 8, 2008." STUDY WAS PREPARED BY:

CASTLE ENGINEERING & TESTING, LLC
 PROJECT NO. 08G036
 1216 SANTA MARIA AVENUE
 LAREDO, TEXAS 78040
 PHONE: 956.727.3530

2. THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED BY THE CLIENT AND/OR CONTRACTOR TO VERIFY DETAILS PROVIDED IN THESE DRAWINGS ARE SUITABLE TO BE INSTALLED IN/ON EXISTING ON-SITE SOILS. ADDITIONAL SOIL PREPARATION MAY BE REQUIRED BY THE GEOTECHNICAL ENGINEER TO INSTALL THESE DETAILS.

GENERAL:

1. LANDSCAPING SHALL BE DESIGNED BY CITY OF LAREDO.
2. TYPICAL DEPTH OF A FLAT CURB IS 1-FT OR MATCH THE GRAVEL DEPTH.
3. LIGHTING SHALL BE DESIGNED BY CITY OF LAREDO.

MATERIAL SUPPLIER LIST:

ADVANCED DRAINAGE SYSTEMS, INC. (ADS)
 4640 TRUEMAN BOULEVARD
 HILLIARD, OHIO 43026
 PHONE: 800.821.6710
 WWW.ADS-PIPE.COM

ENVIROGRID
 8615 GOLEN SPIKE LANE
 HOUSTON, TEXAS
 PHONE: 800.434.4743
 WWW.ENVIROGRID.COM

US FABRICS, INC.
 3904 VIRGINIA AVENUE
 CINCINNATI, OHIO 45227
 PHONE: 800.518.2290
 WWW.USFABRICSINC.COM

NORTH AMERICAN GREEN
 14649 HIGHWAY 41 NORTH
 EVANSVILLE, IN 47725
 PHONE: 800.772.2040
 WWW.NAGREEN.COM

AGRI DRAIN CORPORATION
 1462 340th STREET
 ADAIR, IA 50002
 PHONE: 800.232.4742
 WWW.AGRIDRAIN.COM

MISCELLANEOUS INFORMATION

NATURAL STONE HEADWALLS, VERSION 1.0, 6/1/04
 CENTER FOR DIRT & GRAVEL ROADS STUDIES
 PENN STATE UNIVERSITY
 207 RESEARCH UNIT D
 UNIVERSITY PARK, PA 16802
 PHONE: 866.863.6787
 www.dirtandgravelroads.org

POTENTIAL RECYCLED PLASTIC/RUBBER PARKING STOP SUPPLIERS:

AMERICAN RECYCLED PLASTICS, INC.
 1500 MAIN STREET
 PALM BAY, FLORIDA 32905
 PHONE: 866.674.1525
 www.itsrecycled.com
 Note: This company carries many recycled products such as benches, tables, fencing, etc.

GLOBAL INDUSTRIAL (GLOBAL EQUIPMENT COMPANY), INC.
 11 HARBOR PARK DRIVE
 PORT WASHINGTON, NY 11050
 PHONE: 888.978.7759
 www.globalindustrial.com

PAVEMENT COATINGS, INC.
 2120 N. GRAND AVENUE
 EVANSVILLE, IN 47711
 PHONE: 800.422.9554
 www.pavecoat.com

MARKSTAAR, a division of Franklin Marketing, Inc.
 318 EAST 8TH STREET
 LA CROSSE, KS 67548
 PHONE: 888.846.2693
 www.markstaar.com

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	5/4/09	MINOR REVISIONS	DGS

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 CITY OF LAREDO, TEXAS
 LID PARKING LOT DESIGN PILOT PROJECT

Project No.: 103DG1392-1806.02
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NOTES
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