Integrated Testing and Engineering Company of San Antonio, L.P.
Geotechnical & Environmental Engineering • Construction Services • Geologic Assessment

May 01, 2024

Scrappy Development, LLC

1202 W. Bitters Road, Building 1, Suite 1200

San Antonio, Texas 78216

Attention: **Mr. Gordan Hartman**

Re: Subsurface Exploration and Pavement Analysis
Proposed New Streets
The Parklands II Subdivision, Unit 4
Schertz, Texas

InTEC Project No. S191522-A1

Ladies & Gentlemen:

Integrated Testing and Engineering Company of San Antonio (InTEC) completed a **subsurface exploration and pavement thickness evaluation report** (InTEC Project No. S191522 dated December 20, 2019) at the above referenced project site.

Updated pavement section recommendations are presented in this addendum. All other recommendations remain the same as in the original report.

We appreciate and wish to thank you for the opportunity to be of service to you on this project. If we can be of additional assistance or answer any questions, please call us.

Sincerely,
InTEC of San Antonio

InTEC of SAN ANTONIO
F-7623

05/03/2024

Murali Subramaniam, Ph. D., P.E.
Vice President

Table No. 1 – Minimum Flexible Pavement Recommendations – CBR = 2.0 **

Classification	Asphaltic Concrete, Inches	Aggregate Base, Inches	Geogrid	Subgrade (*) Thickness, Inches	Structural Number
Local Type Street (with no bus traffic)	3.00 Type D	8.00	Yes	6" LS	2.92
Local Type Street (with bus traffic)	3.00 Type D	12.50	Yes	8" LS	3.71
Collector	4.00 Type C or 2.00 Type D + 2.00 Type C	17.50	Yes	8" LS	4.85

Subgrade Notes (*):

- 6" or 8" LS – Lime Stabilized subgrade. The subgrade should be stabilized using lime or cement.
    - The subgrade should be tested for soil sulfate content prior to stabilization. If higher levels of sulfate is encountered, alternate procedure may be needed (such as double application of lime or extended cure time).
    - An application rate of 30 lbs per sq yard for 6 inch depth of stabilization is recommended.
    - An application rate of 40 lbs per sq yard for 8 inch depth of stabilization is recommended.
- The subgrade should be proof rolled prior to stabilization to identify any weak areas and densify weak areas.
- If fill is used to raise the grade, fill material underneath the pavement should be on-site material, free of deleterious material with a minimum CBR value of 2.0 and a maximum Plasticity Index value of 55. The gravel size should not exceed 3 inches in diameter. The lime / cement application rate should be re-evaluated. The material should be placed as per applicable city guidelines.

General Notes (**):

- Input parameters are shown in Table No. 3 (Summary Table A). Please call us to provide pavement recommendations, if needed, for different input values.
- If repetitive truck or heavy truck traffic is anticipated, please contact us for revised pavement recommendations.
- Pavement section recommendations are not based on the shrink / swell characteristics of the underlying soils. The pavement can experience cracking and deformation due to shrinkage and swelling characteristics of the soils as described in the Vertical Movements section of this report.
- Significant pavement distress has been observed during construction phase with the combination of construction traffic and irrigation water / rain water getting underneath the asphalt.
- If water is allowed to get underneath the asphalt or if moisture content of the base or subgrade changes significantly, then pavement distress will occur. Moisture penetration underneath the asphalt may be reduced using a vertical moisture barrier, such as a deeper curb (curb extending a minimum of 3 inches into the subgrade).

Geogrid:

- Tensar Triax TX5.. Installed as per manufacturer's guidelines on top of moisture conditioned subgrade.

Subgrade Verification:

- The prepared subgrade should be verified by InTEC at the time of construction.

Table No. 2– Input Parameters – Asphalt Pavement Section Calculations (City of Schertz)

Street Classification →	**Local Type** (without bus traffic)	**Local Type** (with bus traffic)	**Collector**
ESAL	100,000	500,000	1,000,000
Reliability Level	R-70	R-70	R-90
Initial and Terminal Serviceability	4.2 and 2.0	4.2 and 2.0	4.2 and 2.5
Standard Deviation	0.45	0.45	0.45
Service Life	20 years	20 years	20 years
Minimum Pavement Structural Number	2.5	2.5	2.9
Minimum HMAC	3 inches	3 inches	3 inches
Minimum Aggregate Base	8 inches	8 inches	10 inches
Geogrid	Tensar Triax TX-5	Tensar Triax TX-5	Tensar Triax TX-5
Subgrade (refer to pavement sections)	Treated	Treated	Treated
Minimum Base Compaction (Tex 113e)	95 %	95 %	95 %
Minimum Subgrade Compaction (Tex 114e)	95 %	95 %	95 %
Design CBR = 2.0 is used			

References:

- Public Works Design Guide, Schertz, 12/15/2014
- Standard Pavement Details, Schertz, 2015

Calculations

Design CBR = 2.0

Subsurface Exploration and Pavement Analysis Proposed New Streets The Parklands II, Unit 4 Schertz, Texas		
	InTEC Project Number: **S191522-A1**	Date: 04/30/2024

Asphalt Pavement
Design Analysis

Tensar

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	May 9, 2022

Results

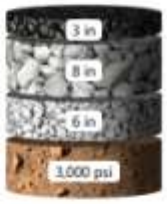
Stabilized

151,300 ESALs

	Thickness	Coeff.	SN
HMA layer 1	3 in	0.420	1.260
Aggregate base (TX7)	6 in	0.300	1.800
Structural number (SN)			3.060

Unstabilized

111,200 ESALs



	Thickness	Coeff.	SN
HMA layer 1	3 in	0.440	1.320
Aggregate base	8 in	0.140	1.120
Subbase	6 in	0.080	0.480
Structural number (SN)			2.920

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
100,000	3,000 psi	70%	0.45	4.2	2

Subsurface Exploration and Pavement Analysis Proposed New Streets The Parklands II, Unit 4 Schertz, Texas	**Residential Local**	
	InTEC Project Number: **S191522-A1**	Date: 04/30/2024

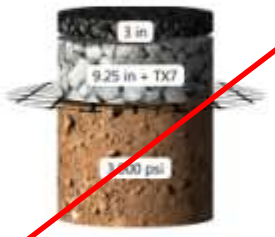
Asphalt Pavement
Design Analysis

Tensar

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	May 9, 2022

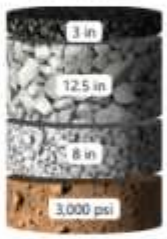
Results

Stabilized
507,900 ESALs



	Thickness	Coeff.	SN
HMA layer 1	3 in	0.420	1.260
Aggregate base (TX7)	9.25 in	0.260	2.405
Structural number (SN)			3.665

Unstabilized
552,100 ESALs



	Thickness	Coeff.	SN
HMA layer 1	3 in	0.440	1.320
Aggregate base	12.5 in	0.140	1.750
Subbase	8 in	0.080	0.640
Structural number (SN)			3.710

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
500,000	3,000 psi	70%	0.45	4.2	2

Subsurface Exploration and Pavement Analysis Proposed New Streets The Parklands II, Unit 4 Schertz, Texas	**Residential Local (with Bus Traffic)**	
	InTEC Project Number: **S191522-A1**	Date: 04/30/2024

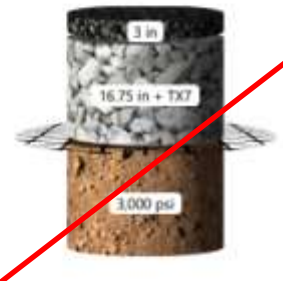
Asphalt Pavement
Design Analysis

Tensar

Design		Reference	
Project		Location	
Customer		Designer	Murali Subramaniam
Company	InTEC	Date	May 9, 2022

Results

Stabilized
1,015,300 ESALs



	Thickness	Coeff.	SN
HMA layer 1	3 in	0.420	1.260
Aggregate base (TX7)	16.75 in	0.214	3.584
Structural number (SN)			4.844

Unstabilized
1,023,300 ESALs

	Thickness	Coeff.	SN
HMA layer 1	4 in	0.440	1.760
Aggregate base	17.5 in	0.140	2.450
Subbase	8 in	0.080	0.640
Structural number (SN)			4.850

Parameters

Project Information

Target ESALs	Subgrade resilient modulus	Reliability	Standard deviation	Serviceability	
				Initial	Terminal
1,000,000	3,000 psi	90%	0.45	4.2	2.5

Subsurface Exploration and Pavement Analysis Proposed New Streets The Parklands II, Unit 4 Schertz, Texas	**Collector**	
	InTEC Project Number: **S191522-A1**	Date: 04/30/2024

Appendix

Subsurface Exploration and Pavement Analysis Proposed New Streets The Parklands II, Unit 4 Schertz, Texas		
	InTEC Project Number: **S191522-A1**	Date: 04/30/2024

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

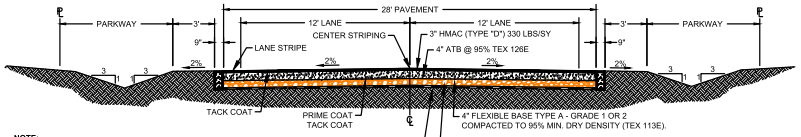
The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

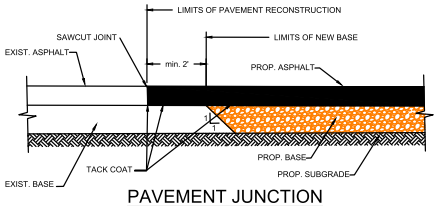


NOTE:
1. FLUSH CURB TO BE A MINIMUM OF 12" DEEP. SEE FLUSH CURB DETAIL.

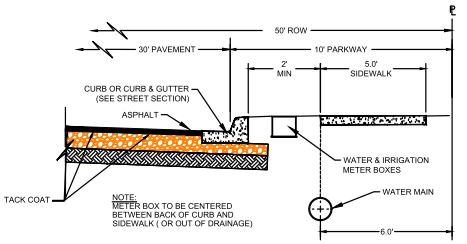
2. PAVEMENT COURSE AND DEPTHS SHOWN ARE A MINIMUM COMPACTED THICKNESS. ENGINEER TO DESIGN PAVEMENT TO ACHIEVE MINIMUM STRUCTURAL NUMBER 3.15.

3. SWELLING SOILS , SOILS WITH P.I. OF 20 OR MORE, SHALL BE TREATED BY REMOVAL AND REPLACEMENT, OR GEOGRID, OR CEMENT SOIL TREATMENT, OR DRAINS/BARRIERS, OR COMBINATION AS DETERMINED BY A PAVEMENT DESIGN.

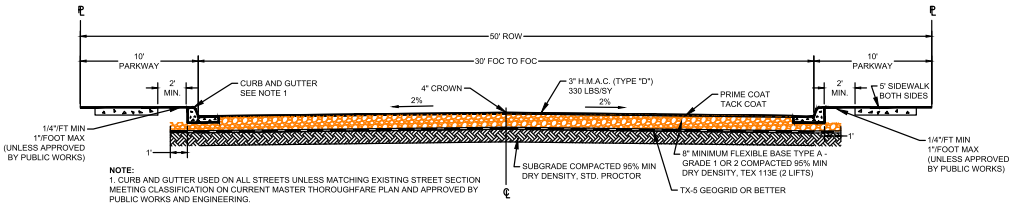
TYPICAL RURAL STREET PAVEMENT SECTION
(NOT TO SCALE)



PAVEMENT JUNCTION
(NOT TO SCALE)



TYPICAL PARKWAY LAYOUT FOR 50' R.O.W.
(NOT TO SCALE)

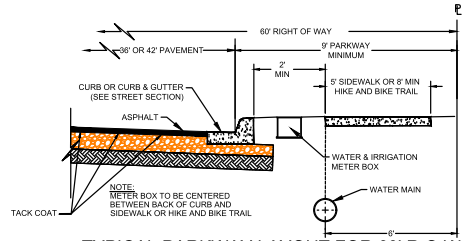


NOTE:
1. CURB AND GUTTER USED ON ALL STREETS UNLESS MATCHING EXISTING STREET SECTION MEETING CLASSIFICATION ON CURRENT MASTER THOROUGHFARE PLAN AND APPROVED BY PUBLIC WORKS AND ENGINEERING.

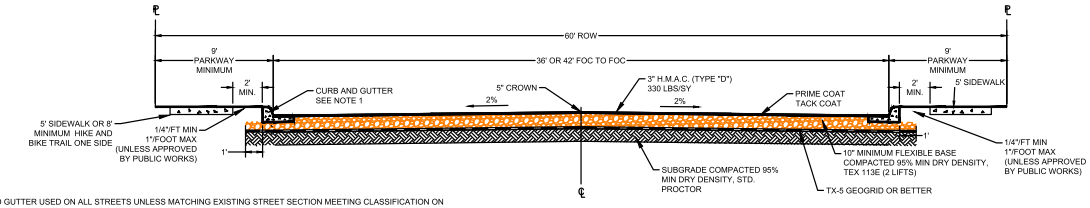
2. PAVEMENT COURSE AND DEPTHS SHOWN ARE A MINIMUM COMPACTED THICKNESS. ENGINEER TO DESIGN PAVEMENT TO ACHIEVE MINIMUM STRUCTURAL NUMBER = 2.50.

3. SWELLING SOILS, SOILS WITH P.I. OF 20 OR MORE, SHALL BE TREATED BY REMOVAL AND REPLACEMENT, OR GEOGRID, OR CEMENT SOIL TREATMENT, OR DRAINS/BARRIERS, OR COMBINATION AS DETERMINED BY A PAVEMENT DESIGN.

TYPICAL 50' R.O.W. STREET SECTION
(NOT TO SCALE)



TYPICAL PARKWAY LAYOUT FOR 60' R.O.W.
(NOT TO SCALE)



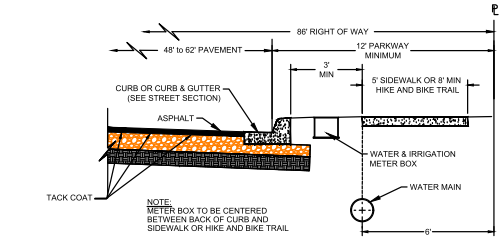
NOTE:

1. CURB AND GUTTER USED ON ALL STREETS UNLESS MATCHING EXISTING STREET SECTION MEETING CLASSIFICATION ON CURRENT MASTER THOROUGHFARE PLAN AND APPROVED BY PUBLIC WORKS AND ENGINEERING.

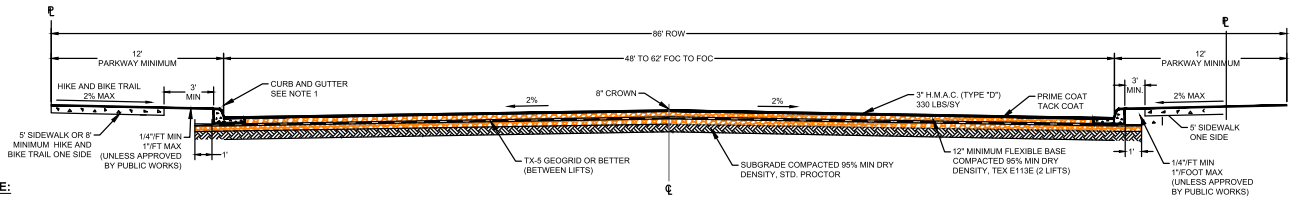
2. PAVEMENT COURSE AND DEPTHS SHOWN ARE A MINIMUM COMPACTED THICKNESS. ENGINEER TO DESIGN PAVEMENT TO ACHIEVE MINIMUM STRUCTURAL NUMBER = 2.90.

3. SWELLING SOILS, SOILS WITH P.I. OF 20 OR MORE, SHALL BE TREATED BY REMOVAL AND REPLACEMENT, OR GEOGRID, OR CEMENT SOIL TREATMENT, OR DRAINS/BARRIERS, OR COMBINATION AS DETERMINED BY A PAVEMENT DESIGN.

TYPICAL 60' R.O.W. STREET SECTION
(NOT TO SCALE)



TYPICAL PARKWAY LAYOUT FOR 86' R.O.W.
(NOT TO SCALE)



NOTE:

1. CURB AND GUTTER USED ON ALL STREETS UNLESS MATCHING EXISTING STREET SECTION MEETING CLASSIFICATION ON CURRENT MASTER THOROUGHFARE PLAN AND APPROVED BY PUBLIC WORKS AND ENGINEERING.

2. PAVEMENT COURSE AND DEPTHS SHOWN ARE A MINIMUM COMPACTED THICKNESS. ENGINEER TO DESIGN PAVEMENT TO ACHIEVE MINIMUM STRUCTURAL NUMBER= 3.25.

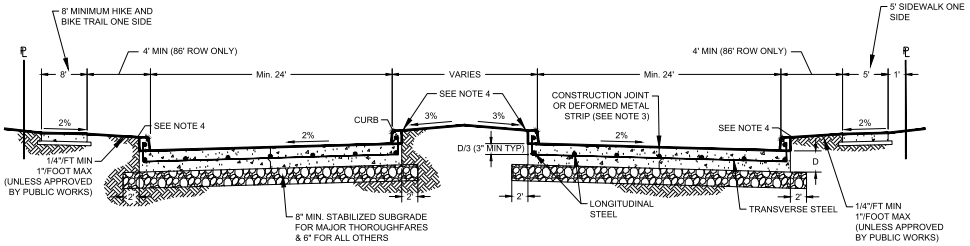
3. SWELLING SOILS, SOILS WITH P.I. OF 20 OR MORE, SHALL BE TREATED BY REMOVAL AND REPLACEMENT, OR GEOGRID, OR CEMENT SOIL TREATMENT, OR DRAINS/BARRIERS, OR COMBINATION AS DETERMINED BY A PAVEMENT DESIGN.

TYPICAL 86' R.O.W. STREET SECTION
(NOT TO SCALE)

CITY OF SCHERTZ TEXAS
ENGINEERING AND PUBLIC WORKS

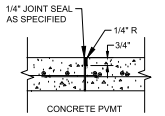
STREET SECTIONS

	PROJECT NO.:		DATE: 2015
DRWN. BY: BCP,LBJ	DSGN. BY: PW	CHKD. BY: KJL	SHEET NO.: 1 of 2



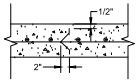
TYPICAL DIVIDED ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

(NOT TO SCALE)



CONSTRUCTION JOINT

(NOT TO SCALE)



DEFORMED METAL STRIP

(NOT TO SCALE)

CONCRETE PAVEMENT NOTE:

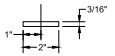
1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".

2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS OTHERWISE SHOWN ON DRAWINGS.

3. CONTRACTOR MAY SAWCUT IN LIEU OF DEFORMED METAL STRIP.

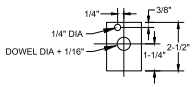
4. USE STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.

5. AN EQUAL OR LARGER AREA OF WELDED REINFORCEMENT BAR CONFORMING TO ASTM A497 MAY BE SUBSTITUTED FOR REBARS LISTED **TABLE 1**.



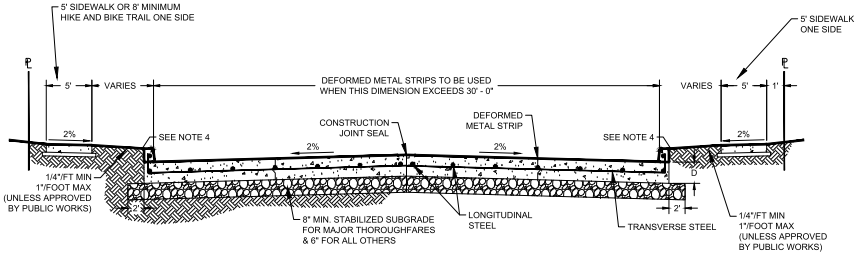
PLAN - JOINT PLATE

(NOT TO SCALE)



ELEV - JOINT PLATE

(NOT TO SCALE)



TYPICAL UNDIVIDED ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

(NOT TO SCALE)

TABLE 1

REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH MAXIMUM EXPANSIONS JOINT SPACING = 80'.
f'c - 3500 PSI/28 DAYS AND Fy = 60,000 PSI.

PAVEMENT THICKNESS, D (IN)	PAVEMENT WIDTH (FT)	LONGITUDINAL STEEL									TRANSVERSE STEEL		
		#4 BARS			#5 BARS			#6 BARS			#4 BARS	#5 BARS	#6 BARS
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	SPACING (IN)	SPACING (IN)	SPACING (IN)
6	28	17	20.50	4.00	-	-	-	-	-	-	36	-	-
7	25	17	18.25	4.00	-	-	-	-	-	-	36	-	-
7	35	24	18.00	3.00	-	-	-	-	-	-	36	-	-
7	38	25	17.75	3.00	-	-	-	-	-	-	36	-	-
7	37	25	18.25	3.00	-	-	-	-	-	-	36	-	-
7	41	28	18.00	3.00	-	-	-	-	-	-	36	-	-
7	45	31	17.75	3.75	-	-	-	-	-	-	36	-	-
8	25	20	15.50	2.75	13	24.50	3.00	-	-	-	36	36	-
8	34	27	15.50	2.50	17	25.00	4.00	-	-	-	36	36	-
8	35	27	16.00	2.00	18	24.25	4.00	-	-	-	36	36	-
8	38	28	15.75	3.25	18	25.00	3.00	-	-	-	30	36	-
8	44	34	15.75	4.00	22	24.75	4.00	-	-	-	30	36	-
8	45	35	15.75	2.25	23	24.25	3.00	-	-	-	30	36	-
9	25	22	14.00	3.00	14	22.50	4.00	-	-	-	36	36	-
9	34	31	13.50	2.00	19	22.25	3.50	-	-	-	30	36	-
9	35	31	13.75	3.75	20	21.75	3.50	-	-	-	30	36	-
9	38	32	13.75	3.00	21	21.25	3.50	-	-	-	30	36	-
9	44	39	13.75	2.75	25	21.75	3.00	-	-	-	24	36	-
9	45	39	14.00	4.00	26	21.25	4.50	-	-	-	24	36	-
10	25	24	12.75	3.50	17	18.25	4.00	-	-	-	36	36	36
10	34	33	12.50	4.00	21	20.00	4.00	-	-	-	30	36	36
10	35	34	12.50	3.75	23	18.75	4.00	-	-	-	30	36	36
10	38	38	12.50	3.50	24	18.50	3.00	-	-	-	30	36	36
10	44	44	12.00	4.00	25	18.50	4.50	-	-	-	24	36	36
10	45	44	12.50	3.00	28	18.00	3.00	-	-	-	24	36	36
11	25	27	11.25	3.00	17	18.25	4.00	4.0	12	3	36	36	36
11	34	38	11.50	2.75	24	17.50	2.50	2.5	17	4	24	36	36
11	35	37	11.50	3.00	24	18.00	3.00	3.0	17	4	24	36	36
11	38	40	11.00	2.00	25	17.75	3.00	3.0	17	4	24	36	36
11	44	48	11.125	2.50	30	18.00	3.00	3.0	21	4	24	36	36
11	45	49	11.125	3.00	31	17.75	4.00	4.0	22	3	24	36	36
12	25	-	-	-	19	16.25	4.00	4.0	13	3	36	36	36
12	34	-	-	-	25	16.00	4.00	4.0	18	4	24	36	36
12	35	-	-	-	26	16.50	4.00	4.0	19	3	24	36	36
12	38	-	-	-	27	16.25	4.50	4.5	20	4.5	24	36	36
12	44	-	-	-	33	16.25	4.00	4.0	24	5	24	30	36
12	45	-	-	-	35	15.75	3.00	3.0	25	3	24	30	36

MINIMUM LAP LENGTHS (L):
A: #4 BARS: L = 22 INCHES
B: #5 BARS: L = 27 INCHES
C: #6 BARS: L = 32 INCHES

TABLE 2

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
4 1/2	1/2	18	12
5	1/2	18	12
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

PAVEMENT EXPANSION JOINT NOTES
1. STEEL TO MEET ASTM STD SPECIFICATIONS FOR CONC. REFINF. BARS. UNITS TO BE SPACED ON 12" CENTERS.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS.
3. CENTER DOWEL HORIZONTALLY ON JOINT
4. CENTER DOWEL VERTICALLY IN CONCRETE AS NEEDED TO MAINTAIN 3" MIN. COVER.
5. CITY OF SCHERTZ MAY APPROVE JOINT PLATE ALTERNATE

01–OCTOBER–2015

CITY OF SCHERTZ TEXAS

ENGINEERING AND PUBLIC WORKS

SEAL OF THE CITY OF SCHERTZ INCORPORATED 1979

STANDARD CONCRETE PAVEMENT SECTION DETAILS

DRWN. BY: LBJ	PROJECT NO.:	DATE: 2015
DSGN. BY: LBJ	CHKD. BY: LBJ	SHEET NO.: 2 of 6