

**UTILITY TRENCH COMPACTION:**

All utility trench compaction tests within the street pavement section shall be the responsibility of the developer's Geo-technical engineer. Fill material shall be placed in uniform layers not to exceed twelve inches (12") loose. Each layer of material shall be compacted to a minimum 95% density and tested for density and moisture in accordance with Test Methods TEX-113-E, TEX-114-E, TEX-115-E. The number and location of required tests shall be determined by the Geotechnical Engineer and approved by the City of New Braunfels Street Inspector. At a minimum, tests shall be taken every 100lf for each lift. Upon completion of testing the Geo-technical Engineer shall provide the City of New Braunfels Street Inspector with all testing documentation and a certification stating that the placement of fill material has been completed in accordance with the plans.

Fitting Type	Pipe Material	Soil Type	Safety Factor	Trench Type	Depth of Bury	Test Pressure	Nominal Size	Bend Angle	Branch Size	Length Along Run	Restraint Length
Horizontal Bend	PVC	CH, Gran.Fill	1.5	5	4	200	6	11.25			3ft.
Horizontal Bend	PVC	CH, Gran.Fill	1.5	5	4	200	6	22.5			5ft.
Horizontal Bend	PVC	CH, Gran.Fill	1.5	5	4	200	6	45			9ft.
Horizontal Bend	PVC	CH, Gran.Fill	1.5	5	4	200	6	90			22ft.
Horizontal Bend	PVC	CH, Gran.Fill	1.5	5	4	200	8	11.25			3ft.
Horizontal Bend	PVC	CH, Gran.Fill	1.5	5	4	200	8	22.5			6ft.
Tee	PVC	CH, Gran.Fill	1.5	5	4	200	6		6	3	44ft.
Tee	PVC	CH, Gran.Fill	1.5	5	4	200	8		6	3	39ft.

- 1) Safety Factor 1.5 to 1
- 2) Test Pressure 200 psi
- 3) Soil Designation CH, Gran Fill
- 4) Depth of Cover 4 Feet

**T.B.M. #1** "PK" NAIL (STAMPED "JONES & CARTER" - POINT NO. 103) SET ON THE CURB AT SOUTHWEST CORNER OF SIDEWALK  
 NORTHING = 13,815,884.83  
 EASTING = 2,250,657.08  
 ELEVATION = 645.09  
 (NAVD '88 DATUM) BASED ON GLOBAL POSITIONING SYSTEM (GPS)

**T.B.M. #2** COTTON SPINDAL (POINT NO. 104) SET IN POWER POLE  
 NORTHING = 13,816,513.54  
 EASTING = 2,250,390.24  
 ELEVATION = 672.24  
 (NAVD '88 DATUM) BASED ON GLOBAL POSITIONING SYSTEM (GPS)

**FIRE LEGEND:**

PROPOSED

— FIRE LANE MARKER

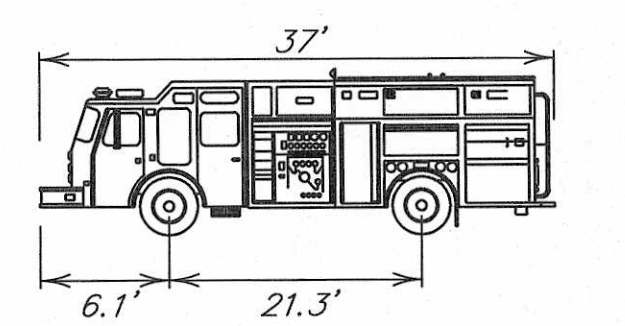
— HOSE LAY BY TRUCK

— HOSE LAY BY MAN

— FIRE HYDRANT

— FIRE HYDRANT MARKER

58'(127') HOSE LAY: LENGTH(CUMULATIVE)



Width : 37'  
 Track : 6.1'  
 Lock to Lock Time : 21.3'  
 Steering Angle : 39.70'

### FIRE ENGINE (TYP.)

- FIRE PROTECTION NOTES**
1. Proposed building and site fire protection improvements shall be constructed in accordance with International Fire Code Version 2006 requirements.
  2. Proposed fire apparatus access roads are located within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building in accordance with Chapter 503.1 of the International Fire Code Version 2006 requirements.

Fire lanes to meet City of New Braunfels, Texas, specifications. Painted Fire Lanes shall be marked with red painted line at least five inches (5") wide around the perimeter thereof with the words "FIRE LANE" and "NO PARKING" in white letters at least four inches (4") high painted on the surface. The words "FIRE LANE" and "NO PARKING" shall be repeated every fifteen feet (15').

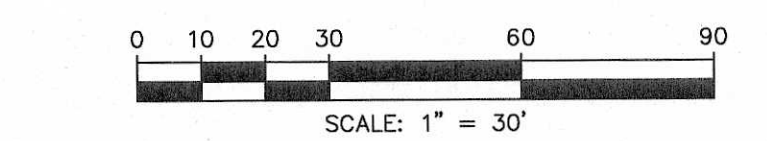
\* R/P Backflow Containment on Water Services Required Due to Existing Water Well.

- GENERAL UTILITY NOTES:**
1. WATER AND SEWER MAINS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH TCEQ RULES AND REGULATIONS.
  2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DEPTH AND LOCATION OF ALL EXISTING UTILITIES, SHOWN OR NOT, DURING CONSTRUCTION. SOME EXISTING UTILITY LINES SHOWN HAVE BEEN TAKEN FROM THE CORRESPONDING UTILITY COMPANY'S RECORD MAPS OR SURVEY PERFORMED BY OTHERS.
  3. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL UTILITY PERMITS, PRIOR TO INSTALLATION OF ANY UTILITIES INCLUDING WATER, SEWER, ELECTRIC, FIBER, AND GAS.
  4. DOMESTIC WATER SERVICE SHALL BE PVC PIPE CONFORMING TO ASTM D-2241, SDR 21, AND RATED FOR 200 PSI. JOINTS SHALL BE GASKETED PUSH ON TYPE CONFORMING TO ASTM D-3139 AND F-477. FITTINGS AND JOINTS SHALL BE RATED THE SAME AS THE PIPE. DOMESTIC SERVICE LINE SHOULD HAVE A MINIMUM OF 24 INCHES OF COVER.
  5. GRAVITY SEWER LATERAL SHALL BE SDR 26 (ASTM D-3034) INSTALLED WITH CLEANOUTS AS PER PLUMBING CODE.
  6. HOPE STORM SEWER PIPE SHALL BE TYPE S, DUAL WALL /N12, SMOOTH INTERIOR.
  7. FIRE MAIN SHALL BE PVC, C-900, DR-18, PC 235 WITH MECHANICAL JOINT RESTRAINT.
  8. FIRE LINE BACKFLOW TO BE LOCATED INSIDE THE BUILDING.
  9. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

EXISTING	PROPOSED	
		WATERLINE w/ GATE VALVE
		FLUSH VALVE w/ GATE VALVE
		PLUG & CLAMP w/ BLOW OFF
		SANITARY SEWER w/ MANHOLE

**ABBREVIATIONS**

B.S.L.	BUILDING SETBACK LINE
CATV	CABLE TELEVISION
ELC	ELECTRIC
ESMT	EXISTMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SEWERM
TEL	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
C.C.P.R.	COMAL COUNTY PLAT RECORD



5/4/16 SANITARY SEWER UPDATES K/JH

NO. DATE REVISIONS APP.

BLEWETT, ALLEN, BINGHAM LLC  
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

**SITE UTILITY & FIRE PROTECTION PLAN**

**JONES CARTER**  
Texas Board of Professional Engineers Registration No. F-439  
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 30' DGN. BY: CBA  
 DATE: MAY 2016 DWN. BY: CBA/JS  
 JOB NO. S0879-0001-00 DWG. NO. —  
 SUBMITTED: — SURV. BY: —  
 F.B. NO. —

STATE OF TEXAS  
KARA J. HEASLEY  
92590  
LICENSED PROFESSIONAL ENGINEER

5/4/16

SHEET NO. 9 OF 28