



April 25, 2018

City of Bisbee
118 Arizona Street
Bisbee, Arizona

Attn: Dwayne Wallace

Re: City Hall Nondestructive Testing
118 Arizona Street
Bisbee, Arizona

WT Job No: 2968JT050

Western Technologies, Inc. (WT) performed ground penetrating radar scans to locate general reinforcing steel spacing on March 28, 2018. The results were recorded by the Structural Concepts Inc. representative on site during the scanning. A return visit was conducted on April 8, 2018 to core and collect concrete specimens for strength testing. Quantity and general location of the cores was determined by George Stevenson, Jr., P.E. from information obtained during the previous visit.

A diagram and coordinates of the core locations, as well as the laboratory strength testing reports, are attached.

Should you have any questions regarding this information, or if we may be of further assistance to you, please do not hesitate to contact us.

Respectfully,
WESTERN TECHNOLOGIES INC.

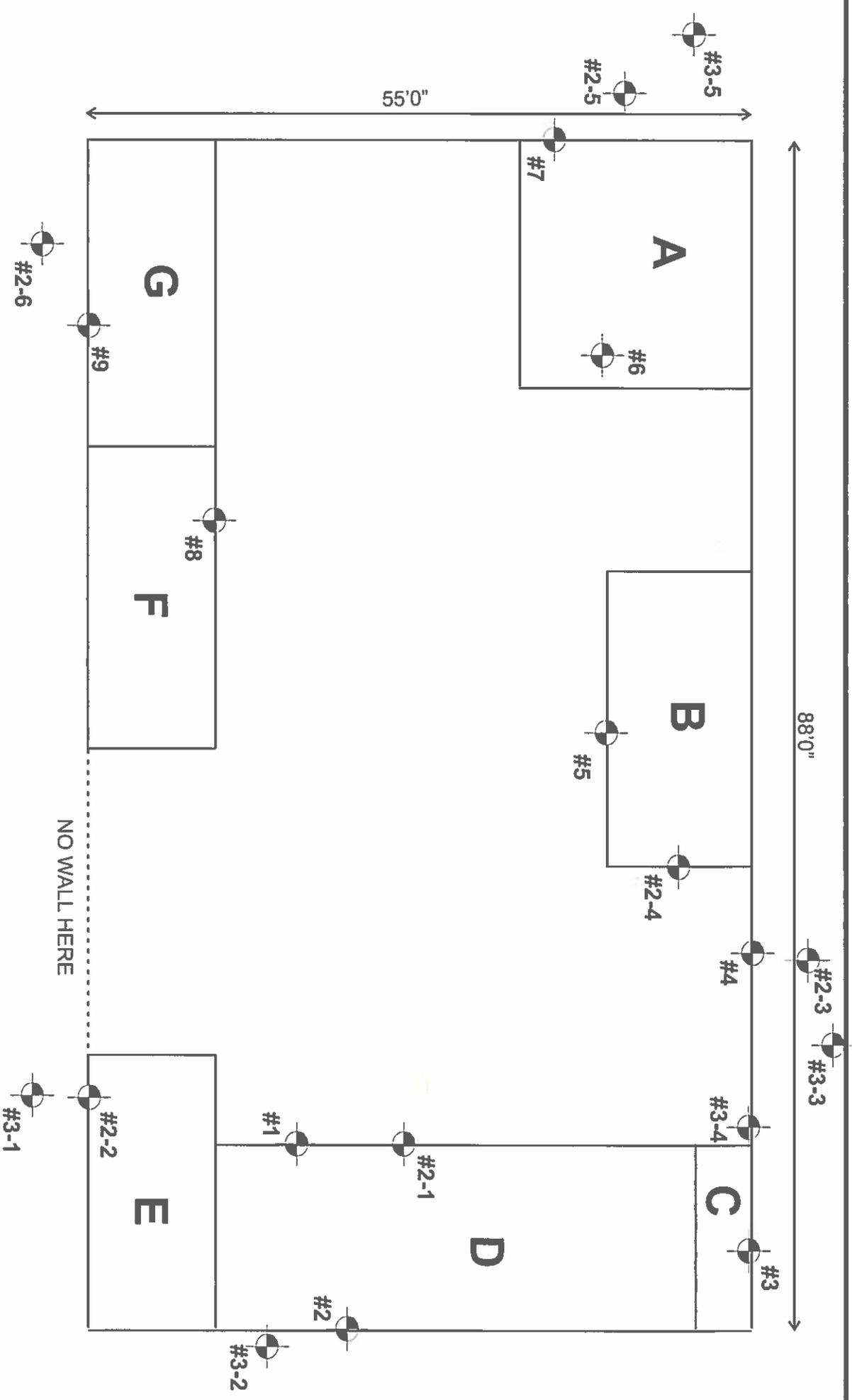
A handwritten signature in black ink, appearing to read 'T Tiedemann'.

Tom Tiedemann, CWI, ICC
Director of NDT Services

A handwritten signature in blue ink, appearing to read 'P Cozzens'.

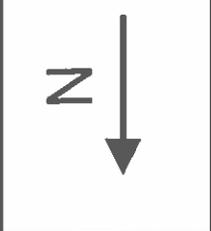
Patrick Cozzens, ICC, ATTI, ACI
Director of Materials Services

Enclosures



LEGEND
 ○ APPROXIMATE CORING LOCATION

NOT TO SCALE: FOR REFERENCE ONLY



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PROJECT: CITY OF BISBEE, TOWN HALL
 JOB NO.: 2968JT050

CORE LOCATION DIAGRAM

PLATE
1

<u>Bore Number</u>	<u>Floor Location</u>	<u>Directive Location</u>	<u>Elevation Location</u>
#1	Basement	4'6" West of S.E.C. of S.E. corner of Room "D"	3'1" A.F.F.E.
#2	Basement	17'10" West of S.W. corner of Room "D"	4'3" A.F.F.E.
#3	Basement	6'0" South of N.E. corner of Room "C"	5'6" A.F.F.E.
#4	Basement	17'0" South of S.E. corner of Room "C"	3'0" A.F.F.E.
#5	Basement	10'3" South of N.E. corner of Room "B"	4'6" A.F.F.E.
#6	Basement	13'3" East of N.W. corner of Room "A"	3'8" A.F.F.E.
#7	Basement	19'8" East of S.W. corner of Room "A"	3'2" A.F.F.E.
#8	Basement	16'2" South from N.W. corner of Room "F"	5'6" A.F.F.E.
#9	Basement	20'0" North of the S.E. corner of Room "G"	2'0" A.F.F.E.
#2-1	First Floor	20'0" West of inside wall of Room "E"	15'3" A.F.F.E.
#2-2	First Floor	16'6" South from N.E. corner of Room "E"	18'0" A.F.F.E.
#2-3	First Floor	17'0" South of S.E. corner of Room "C"	11'10" A.F.F.E.
#2-4	First Floor	5'0" East of N.W. corner of Room "B"	17'6" A.F.F.E.
#2-5	First Floor	17'0" East of S.W. corner of Room "A"	15'4" A.F.F.E.
#2-6	First Floor	11'6" North of the S.E. corner of Room "G"	16'0" A.F.F.E.
#3-1	Second Floor	16'6" South from N.E. corner of Room "E"	31'6" A.F.F.E.
#3-2	Second Floor	16'0" West of the N.E. corner of Room "E"	28'6" A.F.F.E.
#3-3	Second Floor	13'0" South of S.E. corner of Room "C"	28'0" A.F.F.E.
#3-4	Second Floor	1'0" South of S.E. corner of Room "C"	31'0" A.F.F.E.
#3-5	Second Floor	16'0" East of S.W. corner of Room "A"	29'0" A.F.F.E.

- A.F.F.E. = Above Finished Floor Elevation
- Basement Finished Floor Elevation = 0'0"
- All cores taken on interior side



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PROJECT: CITY OF BISBEE, TOWN HALL
JOB NO.: 2968JT050

CORE LOCATION DIAGRAM

PLATE

2



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**LABORATORY REPORT ON
CONCRETE / MASONRY CORES**

Client **CITY OF BISBEE**
118 ARIZONA STREET
BISBEE, AZ 85603

Date of Report **04-12-18**
Job No. **2968JT050**

Event / Invoice No. **2** Lab No. **041118**
Authorized By **DWAYNE WALLACE** Date **04-11-18**
Sampled By **TIEDEMANN/WT** Date **04-11-18**
Submitted By **TIEDEMANN/WT** Date **04-11-18**

Project **BISBEE CITY HALL**

Location

Contractor

Arch. / Engr.

Type / Use of Material: Concrete RCC Shotcrete
 Masonry Cores

Supplier / Source --/--

Source / Location Desig. By **TIEDEMANN/WT** Date **04-11-18**

Sample Source / Location --/SEE BELOW

Reference: **OBTAINING / TESTING DRILLED CORES**

Procedure: **ASTM C39 & C42**

Mortar Type: --

Data: Mix Identification --

Design Strength, psi --

Nom. Max. Aggregate Size, in. --

Date Placed --

TEST RESULTS

CORE IDENTIFICATION	1	2	3	4	5	6
LOCATION OF CORE	BASEMENT (SEE MAP)					
DATE TESTED	04-12-18	04-12-18	04-12-18	04-12-18	04-12-18	04-12-18
CONCRETE AGE, DAYS	100+	100+	100+	100+	100+	100+
LENGTH OF CORE, AS RECEIVED	10.5	9.0	10.3	9.0	9.5	9.5
LENGTH BEFORE CAPPING, IN.	4.6	4.5	4.6	4.5	4.4	4.5
LENGTH AFTER CAPPING, IN.	4.9	4.7	4.8	4.7	4.6	4.7
DIAMETER, IN.	2.72	2.72	2.72	2.72	2.72	2.72
LENGTH / DIAMETER RATIO	1.80	1.73	1.76	1.73	1.69	1.73
CROSS-SECTIONAL AREA, SQ. IN.	5.81	5.81	5.81	5.81	5.81	5.81
MAXIMUM LOAD, LBF	9747	5846	21516	12170	10980	9167
COMPRESSIVE STRENGTH, PSI	1677	1006	3703	2094	1890	1578
STRENGTH CORRELATION FACTOR	1.000	0.978	1.000	0.978	0.975	0.978
CORRECTED COMPRESSIVE STRENGTH, PSI	1680	980	3700	2050	1840	1540
TYPE OF FRACTURE	TYPE 2	TYPE 3	TYPE 2	TYPE 3	TYPE 2	TYPE 3
DIRECTION OF LOAD TO PLACEMENT PLANE	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR
MOISTURE CONDITION AT TIME OF TEST	AS RECEIVED					
UNIT WEIGHT, LBF PER CU. FT.	142.0	143.4	145.7	148.7	145.1	141.0
DEFECTS NOTED	NONE	NONE	NONE	NONE	NONE	NONE

Comments: **PAGE 1 OF 4**

Copies To:

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THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

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BISBEE, AZ 85603

Date of Report **04-12-18**

Job No. **2968JT050**

Event / Invoice No. **2**

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Authorized By **DWAYNE WALLACE**

Date **04-11-18**

Sampled By **TIEDEMANN/WT**

Date **04-11-18**

Submitted By **TIEDEMANN/WT**

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Project **BISBEE CITY HALL**

Location

Contractor

Arch. / Engr.

Type / Use of Material: Concrete RCC Shotcrete
 Masonry Cores

Supplier / Source --/--

Source / Location Desig. By **TIEDEMANN/WT**

Date **04-11-18**

Sample Source / Location --/SEE BELOW

Reference: **OBTAINING / TESTING DRILLED CORES**

Procedure: **ASTM C39 & C42**

Mortar Type: --

Data: Mix Identification --

Design Strength, psi --

Nom. Max. Aggregate Size, in. --

Date Placed --

TEST RESULTS

CORE IDENTIFICATION	7	8	9	2-1	2-2	2-3
LOCATION OF CORE	BASEMENT (SEE MAP)	BASEMENT (SEE MAP)	BASEMENT (SEE MAP)	1 ST FLOOR (SEE MAP)	1 ST FLOOR (SEE MAP)	1 ST FLOOR (SEE MAP)
DATE TESTED	04-12-18	04-12-18	04-12-18	04-12-18	04-12-18	04-12-18
CONCRETE AGE, DAYS	100+	100+	100+	100+	100+	100+
LENGTH OF CORE, AS RECEIVED	10.3	9.8	9.3	9.3	10.3	7.8
LENGTH BEFORE CAPPING, IN.	4.5	4.6	4.6	4.1	4.6	3.6
LENGTH AFTER CAPPING, IN.	4.7	4.8	4.7	4.3	4.8	3.8
DIAMETER, IN.	2.72	2.72	2.71	2.72	2.72	2.72
LENGTH / DIAMETER RATIO	1.73	1.76	1.73	1.58	1.76	1.40
CROSS-SECTIONAL AREA, SQ. IN.	5.81	5.81	5.77	5.81	5.81	5.81
MAXIMUM LOAD, LBF	26063	9560	20908	9463	14282	10023
COMPRESSIVE STRENGTH, PSI	4485	1645	3625	1629	2458	1725
STRENGTH CORRELATION FACTOR	0.978	1.000	0.979	0.967	1.000	0.950
CORRECTED COMPRESSIVE STRENGTH, PSI	4390	1650	3550	1570	2460	1640
TYPE OF FRACTURE	TYPE 3	TYPE 3	TYPE 3	TYPE 3	TYPE 2	TYPE 3
DIRECTION OF LOAD TO PLACEMENT PLANE	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR
MOISTURE CONDITION AT TIME OF TEST	AS RECEIVED	AS RECEIVED	AS RECEIVED	AS RECEIVED	AS RECEIVED	AS RECEIVED
UNIT WEIGHT, LBF PER CU. FT.	153.5	140.2	139.3	144.1	144.5	148.0
DEFECTS NOTED	NONE	NONE	NONE	NONE	NONE	NONE

Comments: PAGE 2 OF 4

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Submitted By **TIEDEMANN/WT** Date **04-11-18**

Project **BISBEE CITY HALL**

Location

Contractor

Arch. / Engr.

Type / Use of Material: Concrete RCC Shotcrete
 Masonry Cores

Supplier / Source --/--

Source / Location Desig. By **TIEDEMANN/WT** Date **04-11-18**

Sample Source / Location --/SEE BELOW

Reference: **OBTAINING / TESTING DRILLED CORES**

Procedure: **ASTM C39 & C42**

Mortar Type: --

Data: Mix Identification --

Design Strength, psi --

Nom. Max. Aggregate Size, in. --

Date Placed --

TEST RESULTS

CORE IDENTIFICATION	2-4	2-5	2-6	3-1	3-2	3-3
LOCATION OF CORE	1 ST FLOOR (SEE MAP)	1 ST FLOOR (SEE MAP)	1 ST FLOOR (SEE MAP)	2 ND FLOOR (SEE MAP)	2 ND FLOOR (SEE MAP)	2 ND FLOOR (SEE MAP)
DATE TESTED	04-12-18	04-12-18	04-12-18	04-12-18	04-12-18	04-12-18
CONCRETE AGE, DAYS	100+	100+	100+	100+	100+	100+
LENGTH OF CORE, AS RECEIVED	7.0	7.8	9.0	8.8	10.0	7.3
LENGTH BEFORE CAPPING, IN.	4.5	4.4	4.4	3.6	4.6	4.1
LENGTH AFTER CAPPING, IN.	4.7	4.6	4.6	3.8	4.8	4.2
DIAMETER, IN.	2.72	2.72	2.72	2.72	2.72	2.72
LENGTH / DIAMETER RATIO	1.73	1.69	1.69	1.40	1.76	1.54
CROSS-SECTIONAL AREA, SQ. IN.	5.81	5.81	5.81	5.81	5.81	5.81
MAXIMUM LOAD, LBF	7521	5056	10193	7562	7653	9264
COMPRESSIVE STRENGTH, PSI	1294	870	1754	1301	1317	1594
STRENGTH CORRELATION FACTOR	0.978	0.975	0.975	0.950	1.000	0.964
CORRECTED COMPRESSIVE STRENGTH, PSI	1270	850	1710	1240	1320	1540
TYPE OF FRACTURE	TYPE 3	TYPE 3	TYPE 2	TYPE 2	TYPE 3	TYPE 3
DIRECTION OF LOAD TO PLACEMENT PLANE	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR
MOISTURE CONDITION AT TIME OF TEST	AS RECEIVED					
UNIT WEIGHT, LBF PER CU. FT.	141.3	139.1	150.1	141.2	145.9	140.4
DEFECTS NOTED	NONE	NONE	NONE	NONE	NONE	NONE

Comments: **PAGE 3 OF 4**

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Contractor

Arch. / Engr.

Type / Use of Material: Concrete RCC Shotcrete
 Masonry Cores

Supplier / Source --/--

Source / Location Desig. By **TIEDEMANN/WT** Date **04-11-18**

Sample Source / Location --/SEE BELOW

Reference: **OBTAINING / TESTING DRILLED CORES**

Procedure: **ASTM C39 & C42**

Mortar Type: --

Data: Mix Identification --

Design Strength, psi --

Nom. Max. Aggregate Size, in. --

Date Placed --

TEST RESULTS

CORE IDENTIFICATION	3-4	3-5			
LOCATION OF CORE	2 ND FLOOR (SEE MAP)	2 ND FLOOR (SEE MAP)			
DATE TESTED	04-12-18	04-12-18			
CONCRETE AGE, DAYS	100+	100+			
LENGTH OF CORE, AS RECEIVED	9.0	8.0			
LENGTH BEFORE CAPPING, IN.	4.6	4.7			
LENGTH AFTER CAPPING, IN.	4.7	4.9			
DIAMETER, IN.	2.72	2.72			
LENGTH / DIAMETER RATIO	1.73	1.80			
CROSS-SECTIONAL AREA, SQ. IN.	5.81	5.81			
MAXIMUM LOAD, LBF	6162	6395			
COMPRESSIVE STRENGTH, PSI	1060	1101			
STRENGTH CORRELATION FACTOR	0.978	1.000			
CORRECTED COMPRESSIVE STRENGTH, PSI	1040	1100			
TYPE OF FRACTURE	TYPE 3	TYPE 3			
DIRECTION OF LOAD TO PLACEMENT PLANE	PERPENDICULAR	PERPENDICULAR			
MOISTURE CONDITION AT TIME OF TEST	AS RECEIVED	AS RECEIVED			
UNIT WEIGHT, LBF PER CU. FT.	142.6	140.5			
DEFECTS NOTED	NONE	NONE			

Comments: PAGE 4 OF 4

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