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October 2, 2015

Mr. Mike Jasek
Project Manager, Lakefront Trail Improvement
F.H. Paschen
5515 N. East River Road
Chicago, IL 60656

RE: Radiological Survey Results – 12th Letter Report
Navy Pier Flyover / Lakefront Trail Improvement
AECOM Project No. 60318016

Dear Mr. Jasek:

Pursuant to requirements of the United States Environmental Protection Agency (USEPA) and conditions specified in permits issued by the City of Chicago Department of Public Health (CDPH), radiation monitoring is required to be performed for the above referenced project when construction activities will disturb fill soils that has not been previously screened for thorium. AECOM Technical Services, Inc. (AECOM) has been contracted to provide the required radiation surveillance and reporting.

The last report (dated March 6, 2015) provided notification that screening activities would be conducted intermittently as required. Discussed below are the remedial and construction related excavation activities performed between March 5 and September 30, 2015.

Traffic Signal Foundations at Lake Shore Drive and E Grand Ave.

A separate ROW letter report by AECOM dated June 15, 2015 was prepared for the signal work, which has already been forwarded to the USEPA. On June 8 and 9, 2015, gamma radiation count measurements were made using Ludlum Model 2221 survey meter and an unshielded 2 x 2 inch Nal probe (Model 44-10). The USEPA cleanup value for Chicago's Streeterville area is 7.1 picocuries per gram (pCi/g) total radium (Ra-226 + Ra-228). The field instrument (Serial # 176944) gamma count equivalent to 7.1 pCi/g was 18,279 counts per minute (cpm) unshielded. Two signal foundations were completed with sonotubes east of Lake Shore Drive on the north side of E. Grand Ave. Excavation revealed native sand at approximately 5-6 feet below ground surface. For sonotube #1 the gamma readings ranged from 5,200 to 6,300 cpm, while readings at sonotube #2 ranged from 7,400 to 12,000 cpm for the urban fill materials. Thus, the monitoring revealed no gamma readings indicative of contaminated fill soil above the clean-up value established by the USEPA for the Streeterville area of Chicago.

Catch Basin near Lake Shore Drive

Gamma radiation count measurements for the construction excavation activities were made using Ludlum Model 2221 survey meter and an unshielded 2 x 2 inch Nal probe (Model 44-10). The field instrument (Serial # 176944) gamma count equivalent to 7.1 pCi/g was 18,279 counts per minute (cpm) unshielded. Monitoring between August 14 and 21, 2015 revealed no gamma readings indicative of contaminated fill soil above the clean-up value established by the USEPA for the Streeterville area of Chicago.

On August 14, the excavation was conducted for the installation of the first catch basin at the laydown area to the south of E. Illinois Street (refer to attached Catch Basin Sketch). This work was performed near the western property boundary line of the laydown area to the east of the Lake Shore Drive. The excavation was 20-feet by 20-feet and extended to approximately 8-feet below ground surface (bgs). Brown colored fill soil along with gravel, bricks, and concrete debris were excavated from this location. The field gamma background for the area is approximately 6,486 cpm unshielded. Radiological monitoring was performed for approximately each 18-inch interval during excavation. When excavation pit was too deep to enter (*i.e*., deeper than 4 feet from ground surface), spoil from the bottom was screened as it was piled adjacent to the excavation pit. The field gamma measurements within the excavations and of the spoil materials generated during the excavation process ranged between 3,383 cpm and 9,710 cpm, which did not exceed the instrument threshold previously stated. Thus, there was no indication of the presence of radiologically-contaminated fill soil and/or an exceedance of the USEPA cleanup value of 7.1 pCi/g total radium.

Catch Basin between Lakefront Trail and Proposed Navy Pier Flyover

On August 17, the excavation for the second catch basin was conducted in the eastern portion of the area between Lakefront trail and the Navy Pier Flyover (refer to Catch Basin Sketch). The excavation was 6-feet by 6-feet with a depth of 8-feet bgs. Fill material containing brown fill soil, sand, and trace concrete debris were observed during excavation. For the instrument used, the gamma count threshold indicative of the 7.1 pCi/g USEPA cleanup value was 18,279 cpm unshielded. The field gamma background in the area is approximately 4,517 cpm unshielded. Radiological monitoring was performed for each 18 inches during excavation. When excavation pit was too deep to safely enter, spoil was screened as it was piled adjacent to the excavation pit. The field gamma measurements within the excavation and of the spoil material generated during the excavation process ranged between 4,810 cpm and 10,792 cpm, thus did not exceed the instrument threshold previously stated.

Pipeline Trench Connecting the Second and the Third Catch Basins

On August 19 through 21, an excavation for the pipeline trench started at the proposed location for the third catch basin then extended along the south side of the Navy Pier Flyover to connect to the second catch basin. Due to the close proximity to the supporting structure of the Navy Pier Flyover, the crew leader decided not to break the concrete slab encountered at a depth of 5-feet bgs and moved the location of the third catch basin 7.5-feet to the south (refer to Catch Basin Sketch). The pipeline trench was approximately 165-feet long, 3-feet wide, and 4-feet to 6-feet deep with a slope of 0.5 percent to drain storm water from the second catch basin to the third one. An 18-feet pipeline section was installed in the trench prior to excavating the next section. Brown fill soil with brick, gravel, concrete debris, and railroad rails were observed in spoil excavated from the area. For the field instrument used, the gamma count threshold indicative of the 7.1 pCi/g USEPA cleanup value was 18,279 cpm unshielded. The field gamma background for the area was approximately 5,526 cpm unshielded. Radiological monitoring was performed for each 18 inches during excavation. The field gamma measurements within the trench and for the spoil material generated during excavation process ranged between 4,917 cpm and 12,287 cpm, which did not exceed the instrument threshold previously stated.

Catch Basin between Pier #7 and the East Abutment

On September 29, the excavation for the third catch basin was conducted between Pier #7 and the East Abutment (refer to Catch Basin Sketch). The excavation was approximately 23-feet by 20-feet with a depth of 10-feet bgs. Fill material containing dark brown fill soil, grey sand, bricks, and trace concrete debris were observed during excavation. For the instrument used, the gamma count threshold indicative of the 7.1 pCi/g USEPA cleanup value was 18,279 cpm unshielded. The field gamma background in the area is approximately 6,467 cpm unshielded. Radiological monitoring was performed for each 18 inch lift during excavation. When excavation pit was too deep to safely enter, spoil was screened as it was piled adjacent to the excavation pit. The field gamma measurements within the excavation and of the spoil

material generated during the excavation process ranged between 5,400 cpm and 11,700 cpm, thus did not exceed the instrument threshold previously stated.

Remediation Excavation

Elevated surface gamma readings as high as 30,000 cpm were recorded at 1-ft below the original surface on May 2, 2014 during excavation work for the temporary fueling truck path just south of Illinois street. Between the January 13 and 15, 2015, AECOM performed a series of down-hole borings to delineate both the horizontal and vertical extent of the radiologically contaminated fill soil. The down-hole gamma measurements indicated that the horizontal dimensions of the contamination were estimated to be 24 by 42-feet with a thickness of approximately 2-feet. The down-hole investigation also indicated that layer of uncontaminated fill soil and/or asphalt was presence above the contaminated fill soil. A sample at boring G-3 was selected for analysis using gamma spectroscopy and had activity of 22.8 pCi/g total radium (Ra-226 + Ra-228). It should also be noted that no asbestos containing string ties were identified to be associated with this area of contamination.

Remediation of the contaminated fill soil was conducted on June 9 and 10, 2015 (refer to the Exclusion Zone Sketch). The contaminated fill soil was loaded directly into Super Sack® type 3.5 cubic yard bulk storage bags. A total of 24 bulk storage bags were loaded with a total of approximately 74 tons of contaminated fill soil. Nutranl results for the individual bags averaged 22 pCi/g total radium with a maximum of 77 pCi/g total radium. The containerized soil was secured behind temporary fencing within the fenced construction site. The USEPA collected two verification samples for the remediated area on June 10, 2015. After review of the analytical results for the verification samples, the USEPA released the remediated area for unrestricted use on June 11, 2015. The containerized fill soil was loaded into dump-style semi-tractor trailers on August 16, 2015 and transported for disposal at U.S. Ecology in Grand View, Idaho.

Please contact us with any questions you have regarding this letter or the reported results.
Regards,

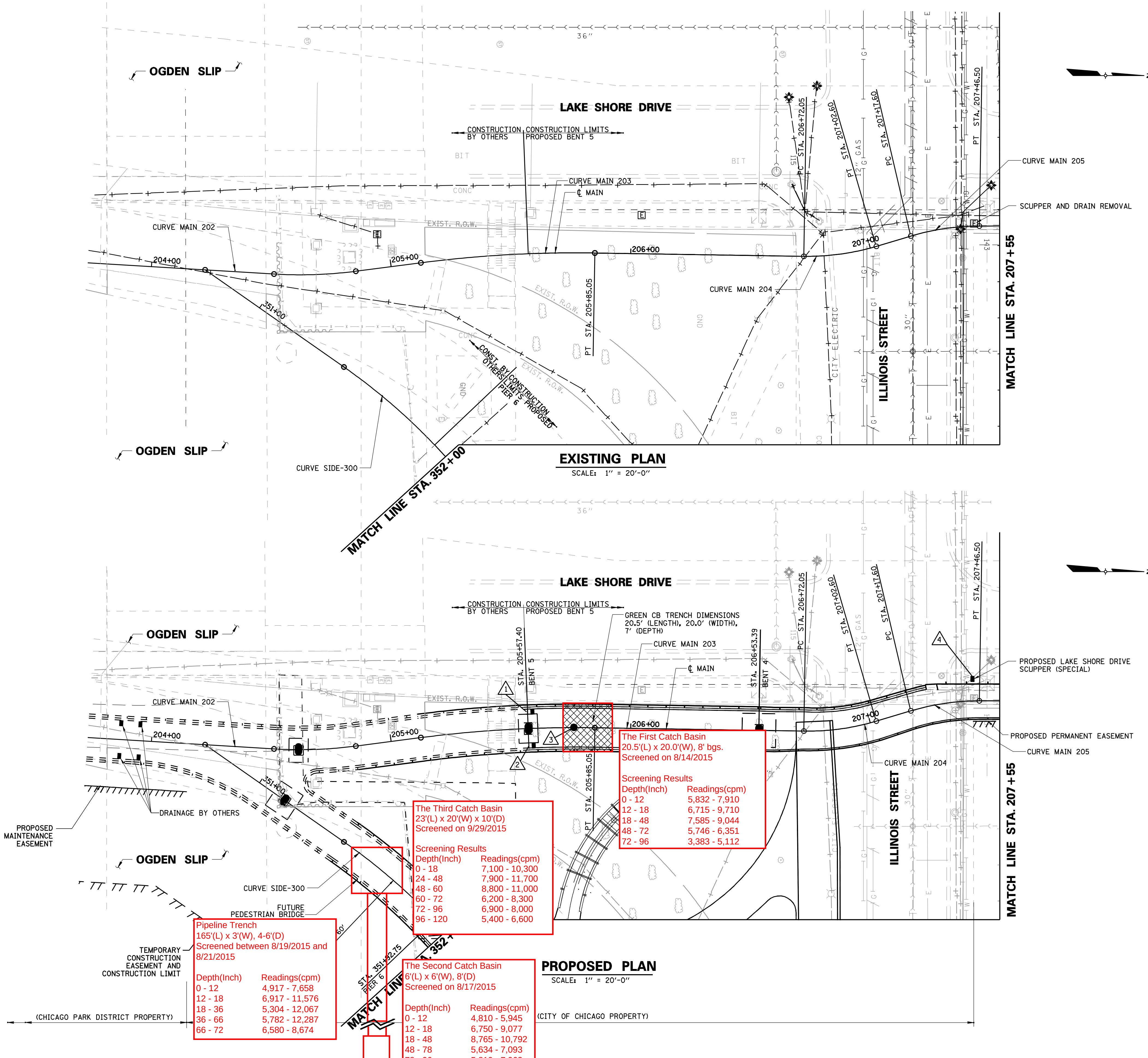
Andrew Kozak
Environmental Engineer

Steven C. Kornder, Ph.D.
Senior Project Geoscientist

cc: Michael Herbert, F.H. Paschen

Attachments: Sketches

CATCH BASIN SKETCH



The First Catch Basin
20.5'(L) x 20.0'(W), 8' bgs.
Screened on 8/14/2015

Screening Results

Depth(Inch)	Readings(cpm)
0 - 12	5,832 - 7,910
12 - 18	6,715 - 9,710
18 - 48	7,585 - 9,044
48 - 72	5,746 - 6,351
72 - 96	3,383 - 5,112

The Third Catch Basin
23'(L) x 20'(W) x 10'(D)
Screened on 9/29/2015

Screening Results

Depth(Inch)	Readings(cpm)
0 - 18	7,100 - 10,300
24 - 48	7,900 - 11,700
48 - 60	8,800 - 11,000
60 - 72	6,200 - 8,300
72 - 96	6,900 - 8,000
96 - 120	5,400 - 6,600

Pipeline Trench
165'(L) x 3'(W), 4-6'(D)
Screened between 8/19/2015 and 8/21/2015

Depth(Inch)	Readings(cpm)
0 - 12	4,917 - 7,658
12 - 18	6,917 - 11,576
18 - 36	5,304 - 12,067
36 - 66	5,782 - 12,287
66 - 72	6,580 - 8,674

The Second Catch Basin
6'(L) x 6'(W), 8'(D)
Screened on 8/17/2015

Depth(Inch)	Readings(cpm)
0 - 12	4,810 - 5,945
12 - 18	6,750 - 9,077
18 - 48	8,765 - 10,792
48 - 78	5,634 - 7,093
78 - 96	5,810 - 7,963

LEGEND:

- ▪ PROPOSED PED. INLET
- ● PROPOSED CATCH BASIN, CHICAGO STD.
- ⊙ PROPOSED MANHOLE, CHICAGO STD.
- ADJ EXISTING DRAINAGE STRUCTURE ADJUSTMENT
- REM EXISTING DRAINAGE STRUCTURE REMOVAL
- SSR EXISTING STORM SEWER REMOVAL
- (X) PROPOSED STORM SEWER
- △X PROPOSED DRAINAGE STRUCTURE, UNLESS NOTED IN SCHEDULE
- GREEN CATCH BASIN STORAGE AREA

NOTES:

1. SEE STRUCTURE DWGS S-60 AND S-61 FOR LAKE SHORE DRIVE SCUPPER (SPECIAL), PEDESTRIAN BRIDGE INLET AND SCUPPER AND DRAIN REMOVAL.
2. PEDESTRIAN BRIDGE INLET AND LAKE SHORE DRIVE SCUPPER (SPECIAL) ARE ON STRUCTURE. CATCH BASINS AND MANHOLES ARE ON GROUND.
3. DRAIN PIPE FROM PEDESTRIAN BRIDGE INLET TO DRAINAGE STRUCTURE NOT SHOWN. SEE SHEET DRN-6 FOR CONNECTION INFORMATION.
4. FOR DRAINAGE SCHEDULE SEE SHEET DRN-6.

NO.	BY	DATE	DESCRIPTION
		01/23/12	FOR FINAL REVIEW

REVISIONS

LAKEFRONT TRAIL IMPROVEMENT FROM JANE ADDAMS PARK TO OGDEN SLIP

EXISTING AND PROPOSED DRAINAGE

CONSULTANT: HNTB

CITY OF CHICAGO

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING

DRAWN	PMS
CHECKED	JAG/DGW
APPROVED	MAM
DATE	10/19/2012
SCALE	1"=20'-0"
CONTRACT NO.	14615

SHEET NO. DRN-1
1 OF 5 SHEETS
PROJECT NO. 44867

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25-OCT-2012 14:18

EXCLUSION ZONE SKETCH

LAKE POINT
TOWER BUILDING

Lakefront Trail/Navy Pier Flyover Improvement
Radiologically-Contaminated Soil Remediation Location Map

N

ILLINOIS ST.

Measurements taken from the back of the street curb

CONC

38'

32'

19'

Exclusion Zone Remediated on 6/9-10/2015

39'

44'

18'

RAMP 'N'

206+00

LAKE FRONT BIKE PATH

DRILL EXISTING HANDHOLE (2)

354+00

355+00

353+00

2"-GSC EXISTING TO REMAIN
WITH NEW COMMUNICATION CABLE

1-1/4" SCHEDULE 40
DIRECTIONAL BORE - 190'

BIT

CONC

NO

1. ROI

2. CLE
AF
PA

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RADIOLOGICALLY-CONTAMINATED SOIL REMEDIATION
LAKEFRONT TRAIL/NAVY PIER FLYOVER IMPROVEMENT
550 EAST ILLINOIS STREET
CHICAGO, IL

Drawn:	BRS	6/25/2015
Checked:	SCK	6/25/2015
Approved:	SCK	6/25/2015
PROJECT NUMBER	60318016	
FIGURE NUMBER	1	