

 US Army Corps of Engineers	ADVANCED MODELING SUBMITTAL REVIEW CHECKLIST (CHX) V2.0			DATE
	CONTRACT NO.	TRANSMITTAL NO.	ITEM NO(s).	SUBMITTAL PHASE 
	PROJECT TITLE AND LOCATION			

SUBMITTER: See APPENDIX C, SUBMITTER INSTRUCTIONS, then complete SUBMITTER QC column.
REVIEWER: See APPENDIX C, REVIEWER INSTRUCTIONS, review SUBMITTER QC column and QCC comments, then complete REVIEWER QA column.

STAGE 1 – PREREQUISITES			SUBMITTER QC	REVIEWER QA
1.1.	The PxP was approved.			
1.2.	The PxP Demonstration was approved.			

STOP! BEFORE YOU CONTINUE!

SUBMITTER: If you answered ‘**NO**’ to any check in Stage 1, **DO NOT CONTINUE**. You must have an approved PxP and PxP Demonstration before going on to Stage 2.
REVIEWER: If you evaluate ‘**FAIL**’ for any check in Stage 1, **DO NOT CONTINUE**. The Submitter must resubmit.

STAGE 2 - CONTENT INVENTORY			SUBMITTER QC	REVIEWER QA
2.1.	All required electronic files were provided.			
	1	The Submitted Files List was submitted.		
	2	All files identified in the Submitted Files List were provided.		
	3	All files identified in the approved PxP - Section 11: Project Deliverables were provided.		
	4	One CAD sheet file (.dwg or .dgn) and one PDF sheet file exists for each sheet of the drawing set.		

STOP! BEFORE YOU CONTINUE!

SUBMITTER: If you answered ‘**NO**’ or ‘**VARIANCE**’, provide details under SUBMITTER QCC on Page 3.
REVIEWER: If you evaluate a check as ‘**FAIL**’, **DO NOT CONTINUE**, and provide details under REVIEWER QAR on Page 3. The Submitter must resubmit.

STAGE 3 - CONTENT VERIFICATION			SUBMITTER QC	REVIEWER QA
3.1.	Files are in required software formats and versions, and contain appropriate content.			
	1	BIM Files		
	2	CIM Files		
	3	GIS Files		
	4	CAD Files		
	5	3D Interactive Review Model		
	6	Industry Foundation Class (IFC) Coordination View		
3.2.	Quality Control Report contains required content.			
	1	Model Standards Report (CHX)		
	2	A/E/C CAD Standard Report (CHX Appendix A)		
	3	A/E/C Graphics Standard Report (CHX Appendix B)		
	4	Interference Management (3D Coordination) Report		

STOP! BEFORE YOU CONTINUE!

SUBMITTER: If you answered ‘**NO**’ or ‘**VARIANCE**’, provide details under SUBMITTER QCC on Page 3.
REVIEWER: If you evaluate a check as ‘**FAIL**’, provide details under REVIEWER QAR on Page 3.

STAGE 4 - CONTENT VALIDATION		SUBMITTER QC	REVIEWER QA
4.1.	BIM Files – See Reviewer Instruction R1.c.		
	1 No errors when opening.		
	2 No broken Links, References, or X-References.		
	3 No unloaded Links, References, or X-Reference.		
	4 Minimized extraneous information.		
	5 Content uses the Coordinate System defined in the approved PxP.		
	6 Models share a common alignment point.		
	7 Compressed/purged.		
	8 Applicable Models include Space/Room data.		
	9 Schedules were produced from the Models, in accordance with the approved PxP.		
4.2.	CIM Files – See Reviewer Instruction R1.c.		
	1 No errors when opening.		
	2 No broken Links, References, or X-References.		
	3 No unloaded Links, References, or X-References.		
	4 Minimized extraneous information.		
	5 Content uses the Coordinate System defined in the approved PxP.		
	6 Models share a common alignment point.		
	7 Compressed/purged.		
4.3.	CAD Files – See Reviewer Instruction R1.c.		
	1 No errors when opening.		
	2 No broken Links, References, or X-References.		
	3 Minimized extraneous information.		
	4 Compliant with the A/E/C CAD Standard. See APPENDIX A Checklist		
	5 Compressed/purged.		
4.4.	PDF Drawings – See Reviewer Instruction R1.c.		
	1 All drawings were derived from the Advanced Modeling content, with the exception of Details and Enlarged Sections as specified in the contract.		
	2 Compliant with the A/E/C Graphics Standard. See APPENDIX B Checklist		
4.5.	3D Interactive Review Model – See Reviewer Instruction R1.c.		
	1 No errors when opening.		
	2 Content exists for each discipline identified in the approved PxP.		
	3 Models share a common alignment point.		
4.6.	Industry Foundation Class (IFC) Coordination View – See Reviewer Instruction R1.c.		
	1 No errors when opening.		
	2 Minimized extraneous information.		
	3 Content exists for each discipline identified in the approved PxP.		
STOP! BEFORE YOU CONTINUE! SUBMITTER: If you answered ‘NO’ or ‘VARIANCE’, provide details in the SUBMITTER QCC block on Page 3. REVIEWER: If you evaluate a check as ‘PWC’ or ‘FAIL’, provide details in the REVIEWER QAR block on Page 3.			

SUBMITTER QUALITY CONTROL CERTIFICATION (QCC) - Attach additional sheets as necessary

COMMENTS (Prefix detailed comments with the relevant Check Number, i.e. 4.1.1: Variance, justification...)

I certify that I am a qualified quality control representative for the submitting party and the preceding QC evaluation is true and correct.

Date signed**x**

Submitter Quality Control Representative signature**REVIEWER QUALITY ASSURANCE REVIEW (QAR)** - Attach additional sheets as necessary

RECOMMENDED ACTION CODES TO BE INSERTED IN ENG FORM 4025-R, SECTION I, COLUMN i (attach additional sheets, when required)

ITEM NO. (Taken from ENG FORM 4025-R)**ACTION CODE RECOMMENDED** (See Note R4)

[ABCE]

[ABCE]

[ABCE]

[ABCE]

[ABCE]

[ABCE]

[ABCE]

[ABCE]

[ABCE]

COMMENTS (Prefix detailed comments with the relevant Check Number, i.e. 4.1.1 - PWC: Comments...)

I certify that I am a qualified quality assurance representative for the Government and the preceding QA evaluation is true and correct.

Date signed**x**

Reviewer signature

 US Army Corps of Engineers	APPENDIX A - A/E/C CAD STANDARD REVIEW CHECKLIST			DATE
	CONTRACT NO.	TRANSMITTAL NO.	ITEM NO(s).	SUBMITTAL PHASE 
	PROJECT TITLE AND LOCATION			

APPLICABILITY: This CHECKLIST applies only to the A/E/C CAD Standard, and to CAD files **NOT** extracted from Autodesk Revit. Each check is preceded by the referenced Section Number.

SUBMITTER: See APPENDIX C, SUBMITTER INSTRUCTIONS, then complete SUBMITTER QC column.

REVIEWER: See APPENDIX C, REVIEWER INSTRUCTIONS, review SUBMITTER QC column and SUBMITTER COMMENTS, then complete REVIEWER QA column.

	PREREQUISITES	SUBMITTER QC	REVIEWER QA
1.	CAD file format complies with the approved PxP.		
STOP! BEFORE YOU CONTINUE! SUBMITTER: If you answered 'NO' to Check 1. above, DO NOT CONTINUE. REVIEWER: If you evaluate 'FAIL' for Check 1. above, DO NOT CONTINUE. The Submitter must resubmit.			
	DRAWING FILE ORGANIZATION NOTE: CAD files extracted from Autodesk Revit are exempt from Checks with the Submitter QC option 'NA'.	SUBMITTER QC	REVIEWER QA
2.	Section 2.2 – Design, Drawing, and Sheet Models		
	1 Model files and Sheet files are used.		
	2 The sheet border is in a separate file referenced by all disciplines to create sheet files.		
	3 Sheet files contain references to Models and allowed raster files.		
3.	Section 2.3 – Drawing Sheet Assembly		
	1 Border Sheet is referenced 1:1 in the Sheet files.		
	2 Sheet files reference the Drawing Model scaled to fit into the Sheet Model.		
4.	Section 2.4 – Electronic Drawing File Naming Conventions		
	1 File names comply with examples listed in the approved PxP.		
	2 Sheet Content complies with Sheet Type Designators.		
5.	Section 2.5 – Coordination Between Sheet File Name and Sheet Identifier		
	1 Sheet identifiers coordinate with the name assigned to the electronic Sheet file.		
	GRAPHIC CONCEPTS	SUBMITTER QC	REVIEWER QA
6.	Section 3.1 – Presentation Graphics		
	1 Correct line widths are used		
	2 Correct line types/styles are used		
7.	Section – 3.2 Text		
	1 Only Arial TrueType font is used		
	LEVEL/LAYER ASSIGNMENTS NOTE: CAD files extracted from Autodesk Revit are exempt from Checks with the Submitter QC option 'NA'.	SUBMITTER QC	REVIEWER QA
8.	Section 4.1 – Level/Layer Assignments		
	1 Level/Layer names are compliant.		
9.	Section 4.2 – Model Files		
	1 G-ANN0-**** general levels/layers are used by all disciplines		

SUBMITTER COMMENTS - *Attach additional sheets as necessary*

(Prefix detailed comments with the relevant Check Number, i.e. 6.1 Scales: Variance, justification...)

REVIEWER COMMENTS - *Attach additional sheets as necessary*

(Prefix detailed comments with the relevant Check Number, i.e. 6.1 Scales - PWC: Comments...)

 US Army Corps of Engineers.	APPENDIX B - A/E/C GRAPHICS STANDARD REVIEW CHECKLIST			DATE
	CONTRACT NO.	TRANSMITTAL NO.	ITEM NO(s).	SUBMITTAL PHASE 
	PROJECT TITLE AND LOCATION			

APPLICABILITY: This CHECKLIST applies only to the A/E/C Graphics Standard, and each check is preceded by the referenced Section Number.
SUBMITTER: See APPENDIX C, SUBMITTER INSTRUCTIONS, then complete SUBMITTER QC column.
REVIEWER: See APPENDIX C, REVIEWER INSTRUCTIONS, review SUBMITTER QC column and SUBMITTER COMMENTS, then complete REVIEWER QA column.

BORDER/COVER SHEETS		SUBMITTER QC	REVIEWER QA
1.	Section 2.1 – Border Sheets		
1	Border sheet is the current version from the CAD/BIM Technology Center.		
2	For more than one building in the project the BLDG ID field is used.		
3	The status field located in the bottom right corner of the sheet border is completed with the current status.		
2.	Section 2.2 – Cover Sheets		
1	Cover sheet contains the sheet border and has a sheet identifier of G-001.		
2	Owner/designer information is shown on the cover sheet starting in the upper left corner.		
3	Project/contract information on the cover sheet matches the information in the border sheet.		
4	The design agency signature block has been added to the cover (in lieu of signing every sheet).		
ORIENTATION		SUBMITTER QC	REVIEWER QA
3.	Section 3.1 – Common		
1	Views oriented on the sheet so that elevations and features are aligned.		
2	When multiple plans appear on the same drawing the orientation conforms to one another and their relative position.		
4.	Section 3.2 – Horizontal		
1	The coordinate system/datum for the project is denoted on maps (civil plans).		
2	Northings and Eastings are shown along the edges of the plan view boundary at the beginning of the plan set or on every sheet.		
3	The grid system used is described in the general notes.		
4	Civil works maps are oriented so that plan north is either towards the top or left.		
5	General plans, elevations and sections of roadways and other structures are oriented so that north is toward the top or to the right of the sheet.		
6	Stationing is from west to east or south to north.		
7	Cross sections are shown looking up station.		
5.	Section 3.3 – Vertical		
1	The structural column grid system has numbered designators across the top of the vertical grid lines from left to right.		
2	The structural column grid system has alphabetical designators on the right side of the horizontal grid lines from bottom to top.		
3	The structural column grid system alphabetical designators on the right side of the horizontal grid lines do not use the letters 'O' or 'I'.		
4	The ground floor is designated as the first floor.		
5	All floor plans (except structural) show room identifiers (the first number should correspond to the floor number).		
6	Door numbers correspond to the secure side room number		
7	All window types have a unique identifier with correct Window Identifier Symbol.		

	DRAWING SYMBOLOGY		SUBMITTER QC	REVIEWER QA
6.	Section 4.2 – Symbols			
	1	Scales appear with each drawing area title either in words and/or figures.		
	2	North arrow is provided on all sheet files where a plan or partial plan is being shown and placed in the lower right-hand corner of the drawing area.		
	3	The elevation/section/detail callouts have both the ID (top) and the sheet on which it is located (bottom).		
	4	The section indicator symbols (or callouts) have the shaded arrow to indicate the direction of the section on both ends for a building section or a directional tick mark for a partial building section.		
7.	Section 4.3 – Linework			
	1	Specific types of lines comply with line weights designated.		
	2	Plan views of new work and demolition work are not combined.		
	3	Existing work is screened (including text) so that new work will stand out.		
	DRAWING ANNOTATION		SUBMITTER QC	REVIEWER QA
8.	Section 5.1 – Text			
	1	General notes are placed in the far right column of the drawing area of the sheet.		
	2	Abbreviations follow NCS UDS Module 5 – Terms and Abbreviations.		
	3	Text height is a minimum of 3/32”.		
9.	Section 5.2 – Dimensions			
	1	Dimension graphics are compliant.		
	SCHEDULES		SUBMITTER QC	REVIEWER QA
10.	Section 6. – Schedules			
	1	Schedules contain at a minimum: a heading, mark, item description, and distinguishing feature.		
	2	Schedule graphics are compliant.		
	3	Imported Excel schedules are compliant.		
	DRAWING REVISIONS		SUBMITTER QC	REVIEWER QA
11.	Section 7.2 – Revision Graphics			
	1	Revision issue marks use equilateral triangles for both amendments (numbers) and modifications (capital letters).		
	2	Revisions and modifications are flagged by the revision symbol.		
	3	Revision symbols are positioned adjacent to the revision.		
	4	The revision contains sequential numbers for amendments and sequential capital letters for modifications.		
12.	Section 7.3 – Revision (Issue) Block			
	1	The Revision (Issue) Block contains the mark (without revision triangles), description, and date information.		
	2	The first Amendment or Modification character is placed on the lowest line of the Revision (Issue) Block and subsequent entries are made above it.		
	3	Sheets requiring more than 8 revisions comply with Option 1 or 2.		

SUBMITTER COMMENTS - *Attach additional sheets as necessary*

(Prefix detailed comments with the relevant Check Number, i.e. 6.1 Scales: Variance, justification...)

REVIEWER COMMENTS - *Attach additional sheets as necessary*

(Prefix detailed comments with the relevant Check Number, i.e. 6.1 Scales - PWC: Comments...)

APPENDIX C: INSTRUCTIONS

SUBMITTER

- S1. The Submitter (Contractor or in-house Government design team) is responsible for completing the **SUBMITTER QC** (Quality Control) column of the Checklist.
- The Submitter will respond to each check with 'YES' or 'NO', indicating compliance with the requirements.
 - If a submittal item intentionally varies from the approved PXP, indicate a 'VARIANCE' (VAR) in the **SUBMITTER QC** column.
 - The Submitter will provide comments corresponding to any 'VAR' response in the **COMMENTS** portion of the **SUBMITTER QCC** block, with a detailed justification for the deficiency or variation. Prefix comments with a relevant Check Number.
- S2. The Submitter must sign the **SUBMITTER QCC** block for the approving authority to accept the Checklist.
- S3. The Submitter must include a completed version of this form with all Advanced Modeling submittals.
- S4. Approval of items does not relieve the Submitter from complying with all Contract requirements.

REVIEWER

- R1. The Reviewer is responsible for completing the **REVIEWER QA** (Quality Assurance) column of the Checklist.
- An authorized technical specialist, typically the District BIM/CIM Manager or delegate, will conduct the review.
 - The Reviewer will evaluate each Check as applicable. Checks in Interim Submittals may receive a 'PASS', 'FAIL', or 'PASS WITH COMMENT' (PWC) evaluation.
 - IMPORTANT: For Design Complete (Specification 01 33 16.00 10) and Final Record (Specification 01 78 00) submittals, 'PASS' or 'FAIL' are the ONLY applicable Reviewer responses in ALL Stage 4 Checks.
- R2. **REVIEWER QAR:** Each Item Number will be taken from the ENG FORM 4025-R, 'Item No. (a.)'.
- R3. The Reviewer will supply comments for the Submitter corresponding to any 'PWC' or 'FAIL' evaluation in the **COMMENTS** portion of the **REVIEWER QAR** block. Prefix comments with a relevant Check Number. For each submittal item, the Reviewer will assign an Action Code in the **REVIEWER QAR** block.
- R4. The Action Codes applicable to Advanced Modeling Submittal Reviews are:
- 'A' – Approved as submitted.
 - 'B' – Approved, except as noted in comments. Resubmission not required.
 - 'C' – Approved, except as noted in comments. Resubmission required.
 - 'E' – Disapproved. Refer to comments.
- R5. Submittal items should receive an Action Code based on the Reviewer evaluation of checks in the Checklist.
- Use Code 'A' when all checks receive a 'PASS' with no comments.
 - Use Code 'B' when some checks receive a 'PWC' on non-critical deficiencies or deficiencies that are not contractually required at the current submittal phase, but will be at a later phase.
 - Use Code 'C' when checks receive a 'PWC' or 'FAIL' on critical deficiencies.
 - Use Code 'E' when:
 - Any of the checks in the **STAGE 1 - PREREQUISITES** block receives a 'FAIL', or;
 - A significant amount of checks on remaining Stages receive a 'FAIL' or the deficiencies are critical enough that a completion of the submittal review is impractical.
- R6. The Reviewer must sign the **REVIEWER QAR** block prior to returning comments and recommended Action Code(s) to the submittal approving authority.

Points of Contact

Please submit all comments and questions relating to this document to:

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